EVIDENCE FOR LARYNGEALS

Edited by

WERNER WINTER

In 1879, Ferdinand de Saussure proposed an important improvement in the theory of Indo-European ablaut: by assuming the prior existence of certain consonants lost in all Indo-European languages then known, he was able to account for the ablaut of long vowels in the same way as for the ablaut of short vowel plus consonant. Albert Cuny showed in 1912 that de Saussure's assumptions provided the only sensible explanation for various reflexes of the so-called long sonantic liquids and nasals of Proto-Indo-European. In 1927, Jerzy Kuryłowicz demonstrated that unitary reflexes of the 'laryngeals', the consonants posited by de Saussure and his followers, had been preserved in Hittite. What beforehand might have been viewed as theoretical constructs applicable to a remote and obscure past now had to be recognized as no more hypothetical than such generally accepted reconstructed features of the Proto-Indo-European sound system as the voiced aspirates or the labiovelars. It took a long time for this realization to be widely shared; many workers in the Indo-European field were content with continuing to operate with Brugmann's assumptions about the sounds of Proto-Indo-European, often confusing these assumptions with actual data. The fact that outside the Anatolian languages the reflexes of laryngeals had merged with reflexes of other Proto-Indo-European phonemes or had disappeared altogether, contributed strongly to the averse reactions of the skeptics. On the other hand, those who were impressed with the logic and coherence of the Saussurian analysis found the difficulties to be faced in work on the reconstruction of Proto-Indo-European laryngeals highly challenging: much patience and great skill in the use of widely varying approaches was needed.

In the present volume, an attempt is made to describe critically — with the addition of a comprehensive bibliography — the history of work on laryngeals and their reflexes in Proto-Indo-European and the languages of the Indo-European group. A detailed survey examines for every established subgroup of Indo-European the evidence that can be used as a basis for reconstruction. Some chapters contain concise restatements of well-known materials (e.g., Indo-Iranian, Germanic); some present relevant evidence for the first time in extenso (Albanian, Tocharian); still others offer a detailed critique of earlier attempts to evaluate facts from a language or a group of languages (Greek, Balto-Slavic, Armenian). The individual authors — specialists in the fields they review — often disagree on minor or major points of detail in the assessment of the data, and no attempt has been made editorially to eliminate such differences of scholarly opinion. However, in spite of conflicting theses and antitheses, there can be no question that all contributors, from the most daring to the most cautious, agree on the basic usefulness of the laryngeal theory for an adequate reconstruction of Proto-Indo-European phonological and morphological structures.

(Continued on back flap)

EVIDENCE FOR LARYNGEALS

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SERIES MAIOR
XI

1965
MOUTON & CO
LONDON · THE HAGUE · PARIS

EVIDENCE FOR LARYNGEALS

edited by

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AND
UNIVERSITY OF KIEL

1965
MOUTON & CO
LONDON · THE HAGUE · PARIS

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Printed in The Netherlands by Mouton & Co., Printers, The Hague.

PREFACE

In the Introduction to the preliminary edition of this volume (*Evidence for laryngeals. Work papers of a conference in Indo-European linguistics on May 7 and 8, 1959. Austin, Texas, 1960*) I wrote:

"...it was our purpose to bring together for formal and informal discussions a small group of scholars actively concerned with questions of laryngeal theory. Rather than try to reconcile differing viewpoints on matters of general interpretation of data, it was decided to strive for as comprehensive as feasible a presentation of pertinent evidence from individual languages. The form of this presentation was left entirely to the choice of the various contributors; as a result, some of the chapters included in this book contain merely a brief reappraisal of earlier work, whereas others try either to cover the entire range of new evidence in a hitherto untouched language or to discuss in great detail facts and problems in a well-studied field. No attempt was made to eliminate contradictions between individual papers by later editing; partly this was due to the nature of the disagreements, which may be considered typical for the state of research in this area; partly did it seem appropriate to interfere as little as possible with the individual author's preferences. Since these contributions were not meant as introductory material for readers completely unfamiliar with the subject matter, it was decided also not to adjust such details as differently abbreviated references to basic works in the field or use of symbols varying from one author to the other. In the latter case in particular it was felt that a specific choice on the part of an author represented a specific interpretation of a complex interrelated set of facts, so that any rewriting would have entailed at least the possibility of a reinterpretation, which was undesired at this point..."

In editing the present volume, the same general policy was adhered to: the chapters included remain independent contributions by authors with sometimes greatly varying views and techniques. Changes over against the preliminary edition concern the substance rather than the organization of the book: several of the contributors have thoroughly reworked their chapters (only one author's papers remained completely in the original state, except for minor adjustments introduced by the editor); Mr. Puhvel's general paper included at the beginning of the preliminary edition has been replaced by a detailed discussion of the history and development of laryngeal studies by a nonparticipant of the original conference, my colleague at the University of Texas, Mr. Polomé, who also contributed a comprehensive bibliography; the brief statement on componential analysis by Mr. Watkins, which stands at the end of the preliminary version, has been omitted in the interest of a clearer and more balanced general pattern, as have been Mr. Cowgill's comments. Finally, two indices have been added to facilitate the use of this volume.

It is my pleasure again to thank Mr. Cowgill for his generous help in proofreading; his competence in many different areas of Indo-European studies and his editorial experience make him a greatly appreciated partner in the preparation of a book like the present one.

Laryngeal studies continue to be viewed with suspicion by many a traditionalist in the Indo-European field; it seems that these fellow scholars fail to understand the basic concern to be found in all work done here: what we attempt to do is to discover new classes of recurrent phenomena, to describe them, and to delimit them by new rules. Only where he can detect regularities, can a comparativist work with confidence and scientific rigor; if laryngeal studies help to extend the area of recognized regular developments, they help to make comparative Indo-European studies more scientific. In essence, what laryngealists try to do is quite traditionalistic; if their formulas seem awkward and their deductions highly hypothetical, let us not forget that labiovelars and long sonantic liquids, too, are strange configurations when viewed in the light of actually occurring phonetic phenomena, and that everything we reconstruct in our work is in the nature of a hypothesis.

WERNER WINTER

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THE LARYNGEAL THEORY SO FAR
A CRITICAL BIBLIOGRAPHICAL SURVEY

EDGAR POLOMÉ

It is certainly most challenging to attempt to give an objective survey of the achievements of laryngeal studies to the present day by way of introduction to the second edition of the papers read at a Conference which, unfortunately, one did not attend. It looks even more like taking up a dangerous wager, when the compiler of this critical bibliographical survey has been described as an "extreme laryngealist"[1] and virtually branded as an ignoramus for his failure to be convinced by makeshift hypotheses to get rid of the troublesome /h/-phoneme of Hittite[2] – not to mention running the risk again, that this approach to the problem might "smack of Alexandrianism, providing footnote-studded integrations of everybody's opinions but the writer's own".[3] To avoid being featured again as the whipping boy in the laryngealist pageant, all one can possibly do is to paraphrase Laurence Sterne in appealing to "thy meek and courteous spirit" – o dear Reader – "so temper'd to *bear and forbear*"!

Perhaps the first intimation of what was going to grow into the still so controversial laryngeal theory is to be found in a preliminary sketch of his views on the Indo-European vowel system which Ferdinand de Saussure published in 1877 in the third volume of *Mémoires de la Société de Linguistique de Paris.* In his discussion of the views of Brugmann, he indeed posits a PIE *A* which accounts for the vowel-alternation *a* : *o* in Gk. ἄγω : ὄγμος and for the contrast Gk. στατός : Skt. *sthitá-*.[4] But whereas in this article *A* still represents a "son indo-européen" whose "gradation" is A_2 (Greek and Latin *ā, ō*), such an assumption is utterly rejected as a misrepresentation of the true nature of the phenomena in the *Mémoire sur le système primitif des voyelles dans les langues indo-européennes.* It may be worth-while to quote the actual first formulation of the basic postulates of the laryngeal theory:

> "Le phonème a_1 (= PIE /e/) est la voyelle radicale de toutes les racines. Il peut être seul à former le vocalisme de la racine ou bien être suivi d'une seconde sonante que nous avons appelée *coefficient sonantique.*

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[1] Kronasser, 1956, 245.

[2] Bonfante, 1957, 28.

[3] Puhvel, 1960a, 9.

[4] Saussure, 1877 (*Rec.*, 381ff.).

Dans de certaines conditions qui ne sont pas connues, a_1 est remplacé par a_2 (= PIE /o/); dans d'autres, mieux connues, il est expulsé.

a_1 étant expulsé, la racine demeurera sans voyelle dans le cas où elle ne contient point de coefficient sonantique. Dans le cas contraire, le coefficient sonantique se montre nu, soit à l'état *autophtongue* (i.e., "syllabic"), et fournit une voyelle à la racine.

Les phonemes *A* et *ǫ* sont des coefficients sonantiques. Ils ne pourront apparaître à nu que dans l'état *réduit* de la racine. A l'état normal de la racine, il faut qu'ils soient précédés de a_1, et c'est des combinaisons a_1 + *A*, a_1 + *ǫ*, que naissent les longues *Ā*, *ǭ*. La permutation a_1 : a_2 s'effectue devant *A* et *ǫ* comme ailleurs."[5]

In defining his phonemes /A/ and /Ǫ/ as "coefficients sonantiques", Saussure obviously visualized them as resonants[6] with either syllabic or non-syllabic allophones, without even broaching the question of the phonetic realities they stand for.[7] This typically algebraic systematization of PIE vocalism however contributed to a better insight into the structure of the Indo-European "root", an insight which ultimately led to Emile Benveniste's brilliant "esquisse d'une théorie de la racine". This type of systematization is quite characteristic of Saussure's approach to linguistics, which has been rather crudely labeled a "mathematisch-mechanistische Denkform",[8] and it is still considered by Benveniste as the only valid way to deal with "laryngeals" in reconstruction:

> "On a trop cherché à convertir les laryngales en réalités phonétiques. Nous avons toujours pensé que le statut qui leur convenait présentement était celui d'êtres algébriques. Loin d'en être gênée, la reconstruction indo-européenne s'en trouve facilitée. Les modèles de reconstruction ne doivent pas dépendre d'interprétations phonétiques encore largement conjecturales et qui seraient nécessairement 'historiques'."[9]

This statement almost echoes Jerzy Kuryłowicz' complaint that "ces spéculations phonétiques ont certainement vicié une théorie qui s'en tenait aux traits *fonctionnels* des éléments *ə̯* (i.e., Saussure's 'coefficients sonantiques')."[10] However, this apparent disdain for phonetic reality is precisely the attitude which evoked the most acrid criticism of the "laryngeal theory", under the motto of Carl Marstrander's pungent remark:

> "La linguistique n'est pas les mathématiques, le système d'une langue ne se prête pas toujours à être défini par des équations."[11]

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[5] Saussure, 1879, 135 (*Rec.*, 127).

[6] Ibidem, 8 (*Rec.*, 9).

[7] The closest he comes to a statement about their phonetic nature is when he accounts for Brugmann's /ə/ by describing it as a "voyelle indéterminée" resulting from a "dégénérescence des *voyelles* A et Ǫ" (1879, 178 [*Rec.*, 167])!

[8] Hans Arens, *Sprachwissenschaft. Der Gang ihrer Entwicklung von der Antike bis zur Gegenwart* (Freiburg-Munich, 1958), 388, 402. More accurate would be its description as "algebraic-structural".

[9] Benveniste, 1962, 10.

[10] Kuryłowicz, 1956, 169.

[11] Marstrander, 1929, 290.

This is the reason why, from the very start, the few scholars who accepted Saussure's analysis of the PIE vocalic system on a structural basis assigned a definite phonetic content to his symbols: splitting Saussure's /A/ into /E/ and /A/ to account for *ē* : *ā*, Hermann Møller was the first to assume that they could actually be "laryngeal consonants".[12] He was soon followed by Henry Sweet,[13] who described /A/ as a voiced glottal trill, of which /E/ would be a palatalized and /O/ a velarized articulation. In the meantime Møller himself had modified his views, equating /A/ with the Semitic aleph[14] as a first, still timid step towards his far-reaching assumptions of closer genealogical relationship between Indo-European and Semitic, a hypothesis culminating in the publication, in 1917, of his monograph: *Die semitisch-vorindogermanischen laryngalen Konsonanten.* This premature collection of controversial data was hardly fit to enhance the Saussurian theory with a new prestige, and it must be considered as a most unfortunate concourse of circumstances that Albert Cuny, who probably wrote the most suggestive and constructive comment on the hypothesis of the "coefficients sonantiques", then used it to back up his elaborate reconstruction of "Nostratic", the alleged proto-language from which both Indo-European and Hamito-Semitic are supposed to derive. Constantly revising and adapting his views to the changing picture of Proto-Indo-European in the course of his lifetime, Cuny went so far as to assume eight different laryngeals,[15] but never managed to organize them into a really coherent system.[16] However, quite a few hypotheses published with great flourish in later "laryngeal" literature were anticipated with clear insight and careful discrimination by Cuny in his first major article in 1912. The whole theory of the "themes" of Benveniste is indeed already embodied in the conclusion Cuny drew from Saussure's description of dissyllabic roots:

> "Le travail d'élargissement des racines s'est fait, non par simple addition d'une consonne, mais par adjonction d'une syllabe composée de la voyelle suivie d'une consonne. En un mot l'élargissement était à l'origine un vrai morphème, bien que, à l'époque que nous atteignons par la comparaison, il ne forme plus qu'une 'cellule morphologique' avec la racine monosyllabique primitive, d'où il suit nécessairement plus qu'un des deux *e*."

as shown by the example **ghew-* 'pour (esp. libations)' + **-ed-*, yielding PIE **gheu-d-*, with loss of the second *e*, in Gothic *giutan*, versus **ghw-ed-*, to be found in the zero grade with the nasal infix in Latin (3rd plur.) *fundunt*.[17] In the so-called diphthongal "heavy bases", morphemes of the type {-eA-} pattern exactly in the same way; alternations like Greek (Homer) ἄστυ 'town' : (3rd plur. mid.) ἀέσκοντο '(they) passed the night' (Hesychius) are to be explained as reflexes of **Aw°stu* (with anaptyctic vowel after initial cluster of non-syllabic /Aw/) versus **Ḁwes-*, with the syllabic allophone of /A/, accounting for the Greek prothesis in *ἀϝέσ(σ)κοντο;[18] therefore, Skt. *vā́tum* 'weave', versus Vedic *ótum*, can be explained as a reflex of PIE **Aw-eA-*, parallel to **Aw-ebh-* in OHG *wëban*,[19] since initial /A/ before resonant is lost in Indo-Iranian as evidenced by the contrast Skt. *vákṣati* 'grows, increases' : Gk. ἀ(ϝ)έξω reflecting PIE /Aweks/.[20] Perhaps more striking still are Cuny's outspoken confirmation of Saussure's explanation of the voiceless aspirate in Skt. *pṛthú-* as a trace of the /A/ in a post-consonantal pre-vocalic environment,[21] and his assumption that the voiced aspirates reflected by Skt. /h/ in *ahám* 'I', *mahā́nt-* 'great', *duhitár-* 'daughter' and *hánu-* 'jaw' are ascribable to the same phenomenon.[22] As to the phonetic nature of the Saussurian "coefficients sonantiques", Cuny argued that they were primarily consonantal phonemes which developed syllabic allophones in definite environments, and he described them as "laryngeals" with front, central and back coarticulation features.[23]

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[12] Møller, 1880a: "A die tönende, E die tonlose kehlkopfspirans ?, O das kehlkopf-*r* ?".

[13] Sweet, 1880 (1913, 147).

[14] Møller, 1880b: "wahrscheinlich gutturale von der art der semitischen, *A* = ālef, der tonlose gutturale verschlusslaut, und E wahrscheinlich der entsprechende tönende verschlusslaut."

[15] Cuny, 1942a, 93–94; the assumed 3rd and 4th laryngeals are however mentioned as non-existent or coalescing everywhere with the 1st and the 2nd or the 8th!

[16] It is almost pathetic to watch him struggling with the insuperable difficulties of making discrepant linguistic evidence fit into his theoretical schemes, especially in his last work (Cuny, 1946, e.g., 133–145). This makes it extremely difficult to give an objective valuation of his work; the encomiastic introduction of L. Mariès to the *Invitation* (1946) obviously overemphasizes Meillet's interest in Cuny's pioneer research. A more accurate description of Meillet's attitude to this line of research, as well as a carefully shaded appreciation of its results, is given by Heilmann, 1949, 57–82.

In the meantime, as early as 1893, Holger Pedersen had drawn some remarkable corollaries from Møller's footnotes to Saussure's theory, showing that the developments of PIE **eA* > *ā* : **oA* > *ō* : **Ḁ* (in /C – C/) > Indo-Iranian *ĭ* versus "European" *a* : **A* (in /C – V/) > Ø accounted for the morphophonemic alternations in the (IXth class)-*nā*-presents of the type of Skt. (1st sg.) *krīṇā́mi*, (1st plur.) *krīṇīmáḥ*, (3rd plur.) *krīṇánti*[24] and the declension paradigm of Skt. *pánthāḥ*, (dat./abl.plur.) *pathíbhyaḥ*, (gen. sg.) *patháḥ*.[25] Unfortunately, in the latter case, he did not account for the aspirate in Skt. *pánthāḥ* 'way, path' versus Gk. πόντος 'sea', as he was not yet aware of Saussure's explanation of the voiceless aspirates.[26] Therefore, his explanation failed to gain wide acceptance and to make new converts to the "laryngeal theory".[27] Actually, the limited credit which the theory had gained was seriously impaired by Pedersen himself, when he described Saussure's derivation of Indo-European long vowels from /e/ + a "coefficient sonantique" as "eine glottogonische hypothese, die auf die historische sprachforschung keinen einfluss ausüben darf".[28] Although Pedersen later granted, rather reluctantly, that Møller's equation of /A/, /E/, /O/ with the Semitic "gutturals" *aleph*, /ḥ/ and *ayin* might give a clue to the development of the so-called Indo-European "heavy bases", he nevertheless proclaimed:

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[17] Cuny, 1912, 105--106.

[18] Ibidem, 112.

[19] Ibidem, 104–105 (cf. Benveniste, 1935, 156).

[20] Cuny, 1912, 111 (cf. Benveniste, 1935, 152); /Aweks/ actually represents a "thème II élargi" **Aw-ék-s-*, parallel to **pr-ék-s-* (Skt. *prákṣ-*), which also appears in the zero grade in Vedic *ukṣáti* 'is strong'. The weak point in Cuny's reasoning is, however, his interpretation of Greek αὔξω as **Ḁwks-* (1912, 111), which leads him to assume that /a/ in Lat. *argentum* (: Skt. *rajatám*) reflects **Ḁ*, with "*A* vocalisé et *r* second élément de diphtongue" (ibidem, 112, fn. 1); this indeed flatly contradicts his preliminary statement (ibidem, 103, fn. 3), that "*A* a de commun avec les sonantes la sonorité, la continuité et la possibilité de vocalisation, mais possède cette dernière à un moindre degré"!

[21] Saussure, 1892 (*Rec.* 603).

[22] Cuny, 1912, 119–120.

[23] Ibidem, 123–125.

[24] Pedersen, 1893a, 268; 1893b, 292.

[25] Pedersen, 1893a, 269.

[26] He first quotes it in his *Cinquième Déclinaison Latine* (1926, 48, fn. 1) as a parallel to the aspiration of voiced stops before /H/ – the zero grade of *ā* and *ē* – e.g., in the Vedic genitive *mahás* < **meǵH-os*, thus "rediscovering" this process 14 years after Cuny!

> "In der Schwundstufe erscheinen alle drei Gutturale als europäisches *a*, dem in bestimmten Fällen . . . ein arisches *i* . . . gegenübersteht".[29]

Unconvincing as this rejection of the Neo-Grammarian *ə was, Pedersen's assumption of a "Pre-Indo-Germanic" /ǥ/[30] as a substitute for it hardly met with any approval, and, except for a few isolated references to it,[31] the laryngeal theory quickly sank into oblivion outside the narrow circle of scholars investigating the possible relations between Proto-Indo-European and Hamito-Semitic.[32] This led to the still rather widespread misunderstanding that only a close genealogical connexion between those two language-families could warrant the "laryngeal theory".[33]

In 1927 a considerable reversal of opinion was brought about, however, when Jerzy Kuryłowicz clearly pointed out that the consonant *ḫ* actually appears in Hittite in various positions where a Saussurian "coefficient sonantique" had been surmised for Proto-Indo-European.[34] Combining this discovery with a careful study of some problems of Vedic metrics,[35] Kuryłowicz set about reformulating and expanding the theory of "consonantal ə̯", as the Saussurian hypothesis was now called. This led to the publication of a series of articles,[36] a synthesis of which was offered in 1935 in his *Etudes indo-européennes*, where he summarizes his results as follows:

> "1) Toute voyelle longue originaire (c.-à-d. ne provenant ni d'allongement ni de contraction de deux voyelles) est une contraction d'une voyelle brève avec un des trois éléments ə̯$_1$, ə̯$_2$, ə̯$_3$: *e* + ə̯$_1$ > *ē*, *e* + ə̯$_2$ > *ā*, *e* + ə̯$_3$ > *ō*; *o* (provenant de *e* par

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[27] Manfred Mayrhofer (1960, 124) indeed calls Avestan *pantā̊* 'way' : (gen.) *paθō* < PIE **pónteHs* : **pn̥tHés* "jenes Beispiel . . . das endgültig mein Damaskus bewirkt hat".

[28] Pedersen, 1900, 86.

[29] Pedersen, 1907, 349.

[30] Pedersen, 1909, 177–183.

[31] E.g. Odé, 1926; Johansson, 1927.

[32] Cf., besides Møller and Cuny, Oštir, 1913.

[33] Cf. Kronasser, 1956, 244: "ihren Ursprung haben die idg. . . . 'Laryngale' bei den idg.-sem. Laryngalen MØLLERs; diese sind und bleiben die Ahnen der heute diskutierten 'Laryngale'; daran ändert sich nichts, auch wenn man – um sich von MØLLER zu distanzieren – den ursprünglichen Namen und Charakter aufzugeben bereit ist".

[34] Kuryłowicz, 1927b; in the same volume, Cuny (1927, 94, fn. 1) had also hinted to the fact that Hitt. *ḫ* was the reflex of a laryngeal.

[35] Kuryłowicz, 1926.

[36] Kuryłowicz, 1927a, 1927c, 1928a, 1928b.

apophonie qualitative) $+ ə̯_1 > \bar{o}$. Les autres équations, notamment $o + ə̯_2 > \bar{o}$, ne sont pas sûres à cause du manque d'exemples incontestables. Et il est surtout difficile de décider si $\bar{o}$ provient toujours de $o + ə̯_1$ ou s'il représente parfois le résultat d'une contraction de *e* avec un $ə̯_3$.

Quand l'élément ə̯ se trouve entre voyelle et consonne, on a la contraction mentionnée ci-dessus.

2) Quand l'élément ə̯ se trouve entre voyelles (ce qui arrive dans le cas d'un suffixe vocalique ou d'une désinence vocalique s'ajoutant à une racine ou à un thème en voyelle longue originaire), il disparait (phénomène appelé *vocalis ante vocalem corripitur*). Mais $\bar{a}^x + a^x > a^x + a^x$ n'est en réalité que $a^xə̯ + a^x > a^x + ə̯a^x > a^x + a^x$. Les voyelles en hiatus subissent ensuite la contraction.

3) Quand l'élément ə̯ se trouve entre deux consonnes, il disparaît sans laisser une trace, excepté en grec (on ne trouve pas d'exemple pour l'arménien).

4) Quand l'élément ə̯ se trouve entre consonne et voyelle, il disparaît aussi. Mais en indo-iranien *k, t, p* + ə̯ (antévocalique) > *kh, th, ph.* Ce qu'on désigne par *ə* vocalique (eur. *a* = indoir. *i*), est la voyelle réduite $_e$ qui a subsisté après la disparition de la consonne ə̯.

5) Tout mot indo-européen commençant par une voyelle a perdu un ə̯ à l'initiale. Le caractère de ce ə̯ est révélé par le timbre de la voyelle qui subsiste: *e*- $<$ $ə̯_1e$-; *a*- $<$ $ə̯_2e$-; *o*- $<$ $ə̯_3e$- (autant qu'il s'agit d'un *o* originaire et non pas d'un degré apophonique d'*e*). – D'autre part il peut y avoir des formes de racine commençant par une consonne simple, provenant d'un ancien groupe ə̯ + *consonne.* Un tel groupe a été simplifié partout (par la disparition de ə̯), excepté en grec et en arménien (cette constatation n'est qu'un corollaire de 3). En composition (parfois aussi dans le sandhi), après voyelle précédente, la présence d'un ancien groupe se trahit par l'action de la formule 1): *-E* + *ə̯T- > voyelle longue + T* (*E* = voyelle; *T* = consonne).

6) Dans les mots hittites d'origine indoeuropéenne *ḫ* semble continuer $ə̯_2$. Mais il y a aussi des mots indoeuropéens dont le vocalisme *ă̄* n'est pas justifié par un *ḫ* hittite. Il paraît donc que certains *ă̄* de l'indo-européen sont dus à une autre cause que le voisinage de $ə̯_2$. En se fondant sur le hittite on serait tenté à attribuer à l'indoeuropéen une quatrième espèce de ə̯ ($ə̯_4$) (zéro et timbre *a* dans *toutes* les langues indoeuropéennes y inclus le hittite). Mais comme les distinctions basées sur une seule langue sont souvent précaires, et que d'ailleurs la question est d'importance secondaire pour nos buts, nous nous contentons de garder ici l'ancienne tripartition $ə̯_1$, $ə̯_2$, $ə̯_3$".[37]

The articles of Kuryłowicz had already given rise to most vivid discussion, with reactions ranging from variously shaded approval to staunch opposition: Holger Pedersen brought Lycian into the picture, pointing to correspondences like Hittite

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[37] Kuryłowicz, 1935a, 28-30.

ḫa-an-te-iz-zi-iš 'first' : Lycian *χñtawata* 'army-leader';[38] Antoine Meillet[39] had serious reservations, while Albert Debrunner concluded:

"Die Forschungen K.'s machen stark den Eindruck des Konstruierten, erklären aber zahlreiche Absonderlichkeiten der idg. Lautlehre überraschend leicht; wenn sie, wie es den Anschein hat, grundsätzlich auf dem rechten Weg sind, so bedeuten sie einen gewaltigen Fortschritt unserer Kenntnis des Indogermanischen."[40]

Though claiming that Kuryłowicz's development of the theory that IE *ə* was a consonant could not be maintained as a whole, Edgar Sturtevant[41] accepted some of Kuryłowicz's etymologies, while he pointed out that a number of others – i.e., those in which the second laryngeal **ə̯*$_2$, corresponding to Møller's /A/, was reflected by *a* without *ḫ* in Hittite – were inconsistent with the theory. To meet this objection, as well as to account for other discrepancies, Kuryłowicz assumed a fourth laryngeal **ə̯*$_4$, which contrasted as follows with **ə̯*$_2$ in the later synthesis of his research.[42]

	*ə̯$_2$	*ə̯$_4$
(1)	*ḫ* in Hittite;	Ø in Hittite;
(2)	does not aspirate preceding stops;	aspirates preceding stops;
(3)	does not color contiguous /o/;	colors contiguous /o/, e.g., *o* + *ə̯*$_4$ > *ă*;

The strongest attack, however, came from Carl Marstrander,[43] who mainly opposed Kuryłowicz's assumption of the secondary origin of the IE voiceless aspirates, without throwing in any decisive counterargument, though. He utterly rejected the identification of Hittite *ḫ* with Saussure's /A/ by contesting the validity of a few etymologies and by suggesting that *ḫ* might be a hiatus-breaker like the Osco-Umbrian *h* – a mere guess which was to grow into Giuliano Bonfante's hard-ridden battle-horse against the laryngeal theory.[44] Marstrander however acknowledged that he was impressed by Kuryłowicz's clever reinterpretation of the contrast *pādáyati* : *janáyati* as a reflex of the treatment of **ŏ* in "open" versus "closed" syllable in Old Indic (Skt. *janáyati* < PIE **ǵon|ə̯é|i̯e|ti*), but regretted that the Polish linguist had not given more exhaustive evidence to show that metrical lengthening in old compounds like Ved. *anūpá-* was especially characteristic of formations with roots with initial *ə̯* + consonant as second component.

In the meantime, elaborating the ideas of Saussure like Cuny, Emile Benveniste[45] formulated his brilliant theory of the structure of the "root", replacing the traditional

[38] Pedersen, 1928, 157–159 (cf. also *Archiv Orientálni*, vol. 5 [1933], p. 180).

[39] Meillet, 1929, 62.

[40] Debrunner, 1929, 67.

[41] Sturtevant, 1930a.

[42] Cf. the additional note to the quoted passage in Kuryłowicz, 1935a, 254–255.

[43] Marstrander, 1929.

[44] Bonfante, 1936, 1937, 1944, 1945.

[45] Benveniste, 1935, 147–173. – In spite of convergent ideas, Benveniste's systematic study of the PIE root was quite independent of Cuny's tentatively formulated views.

organization into monosyllabic and dissyllabic "light" and "heavy bases" by a coherent system in which a nuclear element of the type /CeC/, called "root", combined with a non-root morpheme of the type /eC/, called "suffix", to constitute alternant "themes", either with full vowel grade in the "root" and zero grade in the "suffix" or with zero grade in the "root" and full vowel grade in the "suffix", e.g., "theme I" *_pér-k-_ in Lith. _peršù_ 'court' : "theme II" in Lat. _precor_ 'pray'. Taking advantage of Kuryłowicz's discovery, Benveniste showed that Hirt's "dissyllabic heavy base" *_pelā_ was nothing but a PIE "root" *_pel-_ with a "suffix" *-(_e_)_ə̯_$_2$-, represented by the "themes" (I) *_pél-ə̯_$_2$- : (II) *_pl-éə̯_$_2$-, e.g., in Hitt. _palḫiš_ 'broad' : Lat. _plānus_ 'level, flat', and established an etymological connexion between Greek ἀνάγκη 'necessity' and νέκταρ 'nectar' by positing "themes" (I) *_ə̯_$_2$_én-k-_ (also appearing in Hitt. _ḫenkan_ 'plague, death'): (II) *_ə̯_$_2$_n-ék-_ (with a _-t-_ "enlargement"). Similarly Skt. _sthā-_ versus _stak-_ reflects PIE "themes II" *_st-eə̯_$_2$- (with _-th-_ analogically carried over from forms with *-_tə̯_$_2$- > _-th-_): *_st-ek-_, and the alleged monosyllabic "heavy base" *_g_^{w}_ā-_, versus *_g_^{w}_em-_ 'go', is actually a PIE "theme II" *_ə̯g_^{w}_-éə̯_$_2$- to a "root" *_ə̯ég_^{w}-, parallel to *_yā-_ < PIE *_ə̯_$_1$_y-éə̯_$_2$-, to PIE *_ə̯_$_1$_éi-_ 'go' (_ə̯_$_1$ corresponding to Møller's /E/), whereas *_dhē-_ 'place' merely reflects a PIE root-nucleus *_dhéə̯_$_1$-, parallel to *_dher-_ 'hold'.

Thus, the theory of "consonantal _ə̯_" provided a solution for one of the basic problems of Proto-Indo-European morphemic structure, but once more the whole weight of tradition was brought to bear against the new look of Proto-Indo-European,[46] and Joseph Vendryes felt obliged to suggest:

> "Il faut laisser au temps et à M. Benveniste lui-même le soin d'accoutumer les esprits à une doctrine aussi nouvelle",

as he tried to reassure his colleagues by stating:

> "Le désastre est moins grand qu'une première impression ne ferait croire",

while describing Benveniste's Indo-European as something far beyond the scope of even the oldest historical languages, whose archaic features philologists used to extrapolate into a wonderfully flexible mother tongue.[47]

The same held true for Kuryłowicz's already mentioned _Etudes indo-européennes_, which came under even heavier fire. This time, A. Debrunner was much sharper in his criticism:

> "in diesem Buch scheint der Scharfsinn weit über die Grenzen hinauszugehen, die das Material selber unsrer Erkenntnismöglichkeit setzt"[48],

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[46] The reaction of most reviewers to it actually depends on the position they have adopted on principle regarding the structure of PIE, e.g., Roland G. Kent's objections based on his own concept of the minimal forms of "semantic segments" (_Language_, vol. 13 (1937), pp. 249–252) or – more striking still – Matteo Bartoli's utter rejection of Benveniste's theory out of sheer "Neolinguistic" doctrinarism ("Le più antiche fasi di forme e suoni dell'ario-europeo", in _Archivio Glottologico Italiano_, vol. 29 [1937], pp. 47–69).

[47] _Bulletin de la Société de Linguistique de Paris_, vol. 37.3 (1936), pp. 34–35.

[48] Debrunner, 1938, 58.

and Franz Specht bluntly stated:

> "Für völlig unbewiesen halte ich ... die Grundlagen, auf denen das ganze Buch errichtet ist."[49]

Apart from his awkward fumbling with the weak grade, while he was desperately groping for some algebraically neat explanation of contrasts like Greek δίδοτε versus Sanskrit *dattá* or Lithuanian *dė̃tis* versus Greek θέσις,[50] a major controversial issue in Kuryłowicz's book was his interpretation of the Hittite material. This became the main subject of investigation in the thirties. Perhaps the strongest opponent of Kuryłowicz's view was Walter Petersen, who tried to explain away the Hittite *ḫ* in connection with his very disputable assumption of a closer relationship of Tocharian and Hittite,[51] by representing it as a development from a pre-Indo-European laryngeal stop similar to Hebrew aleph. This laryngeal, he claimed, "had already dropped its palatal variety (before *ē̆* and *ī̆*) before the separation of Tocharo-Hittite, [but] remaining in its darker varieties (before *ā̆*, *ō̆* and *ū̆*), it became Hitt. *ḫ*, but was lost in IE proper as well as in Tocharian after the latter went its own way."[52] After reexamining the Hittite evidence he rejected his own former view that *ḫ* was a hiatus-filler[53] and concluded it was "a non-phonemic way of leading up to a following vowel, which became phonemic in Hittite by mixture with languages of Semites who themselves used it".[54]

As Walter Couvreur pointed it out, this conception was purely aprioristic;[55] moreover, it implied arbitrary syllabic cuts and involved analogical transfers to account for the frequent occurrence of *ḫ* in post- or pre-consonantal position.[56] Therefore, Couvreur undertook to give all the available Hittite material a thorough perusal to evaluate it more accurately as evidence for the "laryngeal theory". This led to setting up the following tabulation of the diachronic development of the PIE vowel system:[57]

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[49] *Deutsche Literatur-Zeitung*, vol. 58 (1937), col. 569; cf. also against Saussure, *Zeitschrift für vergleichende Sprachforschung*, vol. 59 (1932), p. 83. One wonders, however, how far his own assumption (in *Der Ursprung der Indogermanischen Deklination* [Göttingen, 1944], pp. 287–288) of three "colorations" $_{a\ e\ o}$ of **ə*, whose coalescence with *e/o* yields resp. *ā*, *ē*, *ō*, actually stands from the "laryngeal theory"!

[50] Kuryłowicz, 1935a, 41–43; 55–65. Cf., e.g., Cuny's discussion of his views (1936, 70–72; 74–75), as well as Couvreur's critique (1937, 306–308); see further on Kuryłowicz's reaction to Sturtevant's views (1941b) in *Rocznik Orientalistyczny*, vol. 15 (1939/1949), pp. 21–24.

[51] Petersen, 1933.

[52] Petersen, 1934, 312.

[53] Petersen, 1932, 199–200.

[54] Petersen, 1934, 317.

[55] Couvreur, 1937, 239 ff.

[56] Bergsland, 1938, 261.

[57] Couvreur, 1937, 285 ff.

Symbols			Full grade		Zero grade	
Møller	Benveniste	Couvreur	Initial position	Internal position before consonant		With "vocalization"
E	ə̥$_1$	’	/’e/ >Hitt. *e* (*e-e*) : IE /e/ /’o/ >Hitt. *a* (*a-a*) : IE /o/	/e’/ >Hitt. *ē* : IE /e·/ /o’/ >Hitt. *ā* : IE /o·/	/’/ > Ø	Hitt. *a* : IE *ə*
A	ə̥$_2$	ḥ	/ḥe/ /ḥo/ >Hitt. *ḫa-* : IE /a/ (*ḫa* > *’a* > *a*)	/eḥ/ /oḥ/ >Hitt. *aḫḫ* : IE /a·/ (*aḫ* > *a’* > *ā*)	/ḥ/>Hitt. *ḫḫ* : IE Ø	IE *ə* (<’ with "vocalization" after ḥ/ʿ fell together with ’)
O	ə̥$_3$	ʿ	/ʿe/ /ʿo/ >Hitt. *ḫa-*(*ḫo-*) : IE /o/ (*ʿo* > *’o* > *o*)	/eʿ/ /oʿ/ >Hitt. *aḫ* : IE /o·/ (*oʿ* > *o’* > *ō*)	/ʿ/ > Ø	

Accordingly Couvreur, against Cuny and Kuryłowicz, clings to Brugmann's view that Greek ε, α, ο are "sekundäre Umfärbungen" in the reduced grade of IE *ē, ā, ō,*[58] and to Hirt's rejection of a qualitative ablaut *ā* : *ō,* which implies that /A/ "colored" PIE **ò* as well as **é* to *a.*[59].

J. Friedrich[60] stresses the merit of this thesis as compared with Kuryłowicz's views:

> "tatsächlich bringt seine Erklärung das vorher Ungeordnete in ein festes System; ja manches, um das sich seine Vorgänger überhaupt nicht gekümmert hatten, wie die Tatsache, daß *ḫ* bald als einfacher und bald als doppelter Konsonant erscheint, findet erst jetzt Sinn und Erklärung."[61]

However, quite a few interpretations of the Hittite evidence were most disputable: Knut Bergsland[62] carefully pointed them out, laying special stress (a) on the inacceptability of the *two* etymologies – Hitt. *ḫullā-* 'destroy' : Gk. ὄλλυμι; Hitt. *ḫumant-* 'all' : Lat. *omnis* – backing up Couvreur's assumption of /ʿo/, written *ḫu-*, as Hittite reflex of PIE /ə̥$_3$é/, and (b) on his quite unsatisfactory explanation of the occurrence of Hittite *e* after initial *ḫ-* in *ḫekur* 'summit, peak', *ḫenk-* 'assign, determine', *ḫēuš* 'rain, shower', etc. As for the use of the contrast *-ḫ-* : *-ḫḫ-* to assume, e.g., **ə̥*$_3$ in *la-ḫu-wa-i* 'pours' and **ə̥*$_2$ in *pa-aḫ-ḫu-wa-ar* 'fire', Bergsland[63] emphasized the fact that all Hittite consonant phonemes are involved in a quantitative correlation, "long" versus "short", which has to be correctly interpreted before any assumption can be validly made regarding the significance of the graphic variation *-ḫ-* : *-ḫḫ-*. Summing up the results of previous studies, he therefore concludes:

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[58] Couvreur, 1937, 73–74.
[59] Couvreur, 1937, 75, 267–268; approved by Cuny, 1938a, 160–161; 1938b, 13.
[60] Friedrich, 1941, 93.
[61] Referring to Couvreur's application of Sturtevant's rule to Hitt. *-ḫ-* : *-ḫḫ-*.
[62] Bergsland, 1938, 272–275.
[63] Bergsland, 1938, 283–285.

"Pour nous en tenir au problème des ə̥'s, l'existence d'un phonème i.e. en relation étroite avec le vocalisme _a_, et qui a donné _ḫ_ en hitt., est assurée. L'existence des autres ə̥'s dépend d'une part de la validité de certaines thèses particulières, et de l'autre de la légitimité de certaines considérations théoriques."

This is the reason why Holger Pedersen, considering the existence of *ə̥$_3$ as most precarious,[64] devised a rather simple system in which "diphthongal" eH_1 and eH_2 became _ē_ and _ā_, whereas syllabic $\underset{\circ}{H}_1$ and $\underset{\circ}{H}_2$ appeared as _a_ in Hittite, and non-syllabic H_1 and H_2 as _ḫ_.[65] This enabled him to draw some striking parallels between the treatment of /H/ in Indic and in Hittite:

Hittite	Indic
(1) /H/ maintained between vowels;	hiatus preserved between vowels originally separated by /H/;
(2) post-consonantal /H/ maintained before vowel;	no vowel-lengthening in causatives from _seṭ_-roots, e.g. _janáyati_ < _*ǵonH_1éi̯eti_;[66]
(3) /H/ prevents the assibilation of /t/.	/H/ prevents the patalalization of /k/, e.g. _á-khyat_:_cā́yati_ < _*kH_1i̯-_:_*kéH_1i̯-_.[67]

However, his treatment of the Hittite evidence remained very superficial, as he left it to Hans Hendriksen[68] to check his views against the available linguistic material. The latter tried to establish a set of simple rules according to which /H/ is lost in Hittite (1) before and after stops, (2) between vowels, and (3) between consonants, except if the second consonant is the non-syllabic allophone of /i/ or /u/,[69] but time and again, he had to resort to analogy to account for the numerous discrepant forms. Besides, by assuming with Pedersen[70] that Hitt. /h/ could reflect other PIE phonemes than the Saussurian "coefficients consonantiques", he considerably weakened the argument for the "laryngeal theory",[71] and by concluding that the Hittite alternation _-ḫ-_ : _-ḫḫ-_

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[64] Cf. his argument against the hypothesis of a non-apophonic _o_-vocalism in PIE (Pedersen, 1900, 86–103; cf. also _Zeitschrift für vergleichende Sprachforschung_, vol. 38 [1905], p. 403).

[65] Pedersen, 1938, 179–189, esp. 183–184. Like Johansson (1927), Pedersen uses _H_-symbols with diacritics for "laryngeals"; H_1 and H_2 thus correspond to Møller's /E/ and /A/.

[66] Cf. Kuryłowicz, 1927c, 206 ff. (vide supra, p. 15).

[67] Cf. Kuryłowicz, 1935a, 254.

[68] Hendriksen, 1941.

[69] Ibidem, 84.

[70] Pedersen, 1938, 176–179.

[71] The idea was not new: it originated with Bedřich Hrozný's derivation of _ḫ-_ from an IE guttural in _ḫalki-_ 'grain', _ḫar-_ 'hold', etc. Carl Marstrander elaborated it in his _Caractère indo-européen de la langue hittite_ (Christiania, 1919), pp. 144–149. Holger Pedersen took it up in his _Groupement des dialectes indo-européens_ (Copenhagen, 1925), p. 42, when he connected Hitt. _ḫa-an-te-iz-zi-iš_ 'first' with Gaulish _Cintugnatus_, but in 1928 (in _Litteris_, vol. 5, p. 159), he felt more prone to accept Kuryłowicz's comparison with Lat. _ante_. In his linguistic description of Hittite, he however quotes eight new examples of _ḫ_ allegedly derived from IE gutturals and even assumes that _šu-uḫ-ḫa-a-i_ 'pours' shows intervocalic _-ḫḫ-_ < [ʃ] < [tʃ] < [kʲ] < [pʲ]! Most of his evidence however rests on dubious etymologies and he fails to account for the fact that no "palatalization" occurs in such favorable cases

merely represents two graphic variants of the same phoneme, appearing respectively after front and back vowels, he paved the way for L. L. Hammerich's extreme position with the assumption of only one laryngeal phoneme /H/,[72] which Gordon M. Messing humorously described as "a sort of linguistic skeleton key to open all hitherto locked doors".[73] Actually, the idea that, at a certain stage of its diachronic development, Indo-European had only one laryngeal was already implied by Couvreur's assumption that, outside the Anatolian languages, the *a*-coloring and *o*-coloring laryngeals fell together with the first (non-coloring) laryngeal after affecting the contiguous PIE vowel **e*/*o*.[74] Hammerich's basic error may have been to consider this intermediate stage, which was only partly reached by Hittite, as the original situation in the proto-language, whereas approving of the Saussurian explanation of the ablaut implied positing *three* laryngeals.

Quite aware of this, Cuny states:

> "après lecture du travail de M. Couvreur, je ferai bien volontiers le sacrifice d'un ə̯$_4$ pré-indo-européen".[75]

This view was not shared by Edgar H. Sturtevant who, after opposing Kuryłowicz's

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as *ki-* 'lie, be placed', *gim*(*mant*)- 'winter', *genu-* 'knee', etc. As for Hendriksen's additional material, it implies a thoroughly different treatment of *g^w- as compared with the /ku/-reflex of the other IE labiovelars in Hittite. The etymologies his assumption is based upon are, however, quite inconclusive, e.g., Hitt. *ḫu-u-i-tar* 'animals', connected with Gk. ζῷον, whereas *ḫu-i-iš-zi* 'lives', with which it is obviously related, is duly linked up with Skt. *vasati* 'dwells'. Actually, Hendriksen's "explanation" does not account for the genitive singular *ḫu-it-na-aš*, which clearly points to an -*r*/*n*-stem and makes a derivation with a suffix -*tar* implausible. Besides, the Luwian evidence should also be taken into account, as the Luwian adjective *ḫu-i-du-wa-li-iš* 'alive' (corresponding to Hitt. *ḫuišwant-*) clearly points to an Anatolian stem with dental stop ("theme II" *ə̯$_2$*w-eT-* : *ə̯$_2$*w-es-* in Hitt. *ḫuiš-*).

[72] Hammerich, 1948b.

[73] *Glotta*, vol. 31 (1951), p. 249. This comment applies to Hammerich's rather unfortunate introduction of the laryngeal theory into the disputed problem of the origin of Gk. χθ, φθ, κτ corresponding to Skt. *kṣ* (1948b, 15–25). Cf. for further discussion of this question:
Marcello Durante, "Le spiranti dentali indoeuropee", in *Ricerche Linguistiche*, vol. 1. 2 (1950), pp. 234–249;
Lehmann, 1952, 99–100;
Louis Deroy, "Les mots grecs du type πτόλις et la spirante dentale indoeuropéenne", in *L'Antiquité Classique*, vol. 23 (1954), pp. 305–320;
Kuryłowicz, 1956, 364–366;
Weriand Merlingen, "Idg. 'þ' und Verwandtes", in Μνήμης χάριν. *Gedenkschrift Paul Kretschmer*, vol. 2 (Vienna, 1957), pp. 49–61;
W. S. Allen, "Some problems of palatalization in Greek" – Appendix, in *Lingua*, vol. 7 (1958), pp. 128–133;
T. Burrow, "On the Phonological History of Sanskrit *kṣám-* 'earth', *ṛkṣa-* 'bear' and *likṣā́* 'nit'," in *Journal of the American Oriental Society*, vol. 79.2 (1959), pp. 85–90;
W. Merlingen, "Zu idg. 'þ'," in *Die Sprache*, vol. 8.1 (1962), pp. 74–76.
J. Kuryłowicz, "Probleme der indogermanischen Lautlehre", in *Innsbrucker Beiträge zur Kulturwissenschaft*, Sonderheft 15 (= *II. Fachtagung für indogermanische Sprachwissenschaft. Innsbruck, 10.–15. Oktober 1961*), Innsbruck, 1962, pp. 110–112.

[74] Couvreur, 1935, 33–39.

[75] Cuny, 1938a, 158.

views on Hittite *ḫ* for several years,[76] changed his mind about the validity of the "laryngeal theory" under the influence of Edward Sapir.[77] Sturtevant had indeed unquestioningly taken over the system of four PIE "laryngeals" which Sapir had developed in his last papers,[78] reorganizing it into a rather neat pattern by eliminating non-apophonic *ó*:[79]

	Phonetic features				Reflexes in Hittite	Influence on contiguous PIE /e/	Corresponding symbols	
	Voice	Point of articulation	Articulatory type	Timbre			Pedersen	Kuryłowicz
/ʼ/	voiceless	glottal	stop	palatal	Ø	none		$ə_1$
/ʼ̣/				velar		*a*-coloration		$ə_4$
/x/		(post-)velar	spirant		*-ḫḫ-*		H_2	$ə_2$
/γ/	voiced				*-ḫ-*	none	H_1	$ə_3$*

* (except for the *o*-coloration).

For Sturtevant, the timbre of PIE /o/, alternating with /e/ under the conditions of ablaut, was not affected by any contiguous "laryngeal", and Brugmann's **ə* in the reduced grade of so-called lengthened grade vowels results from a reduced grade vowel **ь* followed by a laryngeal, as it appears from Hitt. *waḫanzi* 'they turn' (with **ьγ*) and *paḫḫweni* (dat. sg.) 'fire' (with **ьx*).[80] Equipped with this well-balanced operational device, Sturtevant set out to check various suggestions made by Sapir in the framework of his Indo-Hittite hypothesis, e.g., the equation of Tocharian A *tākā* 'I was' (< **stăka*, cf. the imperative A *päṣtāk*) with Greek ἕ-στηκα 'I stand', which Sapir assumed to reflect pre-Indo-European **staʼ̣qxa*, with a post-velar glide [q] between the final glottal stop of the root and the initial voiceless velar spirant of the first person singular perfect ending:[81] pointing out that Hittite *te-iḫ-ḫi* 'I place' reflects **dheʼxa* without any such glide, Sturtevant contrasts it with Lat. *fēcī* and Greek θῆκα and states that the development of *-k-* from the clusters of glottal stop + voiceless velar spirant is a striking Indo-European innovation, taking place after the split of Indo-Hittite.[82] This hypothesis then enables him to account not only for the Greek -κ-perfect, but also for the IE suffix *-k(o)-* in Lat. *uērāx*, *cornīx*, etc.

[76] He first suggested initial PIE **bh-* > Hitt. *ḫ-* (1927), but withdrew this hypothesis in 1930 (b), while restating his view (1928, 1929) that "Hittite *ḫ* is the continuant of an Indo-Hittite consonant that was lost in Indo-European" (1930a, 157), a view which he still sets forth in his *Hittite Grammar* (1933, 141). Cf. A. Meillet, in *Bulletin de la Société de Linguistique de Paris*, vol. 35.2 (1935), p. 29, about this view.

[77] Sturtevant, 1936b, 185–187.

[78] Sapir, 1938, 269–274; 1939, 181, fn. 2.

[79] Sturtevant, 1938c, 104–111.

[80] Sturtevant, 1941b, 186–188.

[81] Sturtevant, 1940d, 273, 276.

[82] Sturtevant, 1940d, 276–284.

Similarly, Sapir's discussion of the treatment of PIE initial clusters consisting of a voiceless laryngeal and the non-syllabic allophone of a resonant[83] led to a series of interesting investigations into problems of Greek historical phonology: by assuming that these clusters yielded an IE preaspirated continuant, it was indeed possible to account for the rough breathing in Gk. αἵνω 'winnow' or ἑστία 'hearth' as a reflex of PIE /xw/[84] and to explain the contrast between Gk. ἅγιος 'holy' and ζέω 'seethe' versus Skt. *yájati* 'sacrifices to, worships' and *yásati* 'seethes' as a result of the divergent development of the initial prevocalic non-syllabic allophone of PIE /y/ in Pre-Greek (**y*- > ζ- : **hy*- > ʽ, parallel to **hw*- > ʽ).[85] Applying the same principle to the occurrence of voiceless laryngeal followed by **y* or **w* after the "reduced" vowel **ь*, H. L. Smith Jr. assumed that the resulting IE medial groups *-*əhy*–́, *-*əhw*–́ were the source of the "Verschärfung" in Germanic,[86] whereas Sturtevant derived the Greek adjectives in -αιος from IE -*əhyos*.[87] Combining the results of former research[88] with these new findings, imbued with the productive ideas of Sapir,[89] Sturtevant compiled a synthesis of his views on the "laryngeal hypothesis", which led to renewed widespread discussion of the problem.[90]

In the meantime, while some of the reliable achievements of the theory were integrated in the description of Indo-European phonology in a few handbooks,[91] novices in the trade as well as recent converts unfortunately started waving the magic wand, blithely conjuring linguistic ectoplasms, which they called "roots" and fashioned into morphemes according to the whims of their often delirious imaginations.[92] Though some of them still stuck to definite arbitrary rules in the process of atomization of the root-nucleus, it stands to reason that these rather wild procedures should make the orthodox Neo-grammarian linguists chuckle and the more sedate "laryngealists" shake their heads in dismay![93]

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[83] Sapir, 1938, 269–273.

[84] This conclusion was reached independently by Austin (1941, 88–91), who also accounted for the Greek prothesis (alternating with "spiritus asper" in some cases) by restating Benveniste's explanation: "c'est le reste d'une initiale *ə*- antéconsonantique dans une racine suffixée à l'état II" (1935, 152), along the line of Kuryłowicz's views (1935a, 31–33, 43–4): the prothetic vowel results from the combination of the preceding "laryngeal" with a "reduced" vowel, which Austin does not, however, consider as due to anaptyxis in definite sandhi conditions, but as the reduced grade of the original short vowel *e* of the root, e.g. Greek ἀλέξω "ward off, defend" < **xьlék*-: **xélk*- > ἀλκή "strength, defense" (1941, 84–85). This enables him to provide an explanation for puzzling morphophonemic alternations like Attic εἴργω (< **ewergō*) : ἕρξας (Plato), ἄφερκτος (Aeschylus) as reflexes of **Hьwérg*-: **Hwerg*–́, the changing position of the IE accent being responsible for the different treatment of the root-nucleus in theme II (ibidem, 79).

[85] Sapir, 1938, 271–272; Sapir also ascribed the prothesis of *e*- before *r*- in Greek to the absence of a laryngeal, e.g., in ἐρυθρός : Skt. *rudhiráḥ*, whereas the rough breathing points to an initial cluster of voiceless laryngeal +/r/. In view of Austin's later theory, it is worth while noticing that Sapir carefully distinguished the "true prothetic vowel *e*-" before PIE initial /r/ from "the large class of pseudo-prothetic vowels which are the remnants of laryngeal + vowel, generally reduced, which began the base, e.g., Gk. ὄνομα : Lat *nōmen* < **γənəγ-mən* : **γneγ-mən*, hence palatalized *ñ*- in Toch. A *ñom*"!

[86] Smith, 1941, 93 ff.

[87] Sturtevant, 1941c, 356 ff.

[88] Cf., e.g., his restatement of Saussure's theory of the voiceless aspirates (Sturtevant, 1941a, 1–11).

[89] Another suggestion of Sapir (cf. Sturtevant, 1940c, 181, fn. 1), ascribing the Greek aspirated perfect to personal endings with initial laryngeal, e.g., πέπομφα < **pepomp-xa*, proved less fruitful (cf. Roland G. Kent's conclusive argument against this view in *Language*, vol. 17 (1941), 189–193).

[90] Cf. the reviews listed in the bibliography under Sturtevant, 1942.

[91] Perhaps the best example is M. Lejeune's excellent *Traité de phonétique grecque* (Paris, 1947); cf. M. Leroy, "Notes de phonétique grecque. A propos d'un livre récent", in *L'Antiquité Classique*, vol. 16 (1947), pp. 319–327.

However, the stimulating example of Benveniste, Kuryłowicz, and Pedersen also prompted West-European scholars, whom the second World War then kept uninformed of American research, to investigate some problems of IE morphology with regard to the "laryngeal theory": E. Raucq's inquiry into the denominative origin of the IE verbal system[94] is unfortunately too closely dependent upon Van Langenhove's subjective theory of "nominal semantemes" to be really useful, but F. B. J. Kuiper's analysis of Vedic noun-inflexion[95] contains many stimulating remarks about the PIE paradigmatic ablaut and its connection with accentuation, though his elaboration of Pedersen's hypothesis of two original inflexional types – the "hysterodynamic" and the "proterodynamic"[96] – fails to convince on account of the too numerous normalizations it implies. Quite interesting is his confirmation of Pedersen's remark "daß *H* bis ins Einzelleben der verschiedenen Sprachzweige hinein bestanden hat und sich nachher nach verschiedenen Lautgesetzen entwickelt hat",[97] when he assumes that the contrast between Skt. *pitā́* and Gath. Av. *fəδṛōi* (dat. sg.) reflects the syllabic versus the non-syllabic allophones of IE /H_2/.[98] In further contributions he adduced more conclusive evidence for the thesis that the consonantal allophone of the PIE laryngeal phonemes was still extant as such in Indo-Iranian: it could not only account for the contrast between the 1st and 3rd person singular of the Vedic perfect, e.g., *cakára* : *cakā́ra* < *$k^w ek^w or|H_2 e$: *$k^w ek^w o|re$ (the latter with lengthening of /o/ in open syllable), but also for the rare instances of specific Indo-Iranian voiced aspirates postulated by Cuny, to which Kuiper adds Vedic _sadhástha-_ 'place' < IE _*sedH$_1$és-_ (: _*sed-eH$_1$-s_, in Lat. _sēdēs_).[99]

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[92] A remarkable case is that of A. C. Juret, who carefully reproduced Benveniste's views on the laryngeal theory in his valuable *Phonétique grecque* (1938), but went completely off the track in his later work, especially in his *Dictionnaire étymologique grec et latin* (1942), where a root-ectoplasm *ə̥$_2$*s*- 'bad, ill-willed, hateful' accounts for English *sin*, *sick* and *sorrow*, German *Schaden* and *Schmerz*, Lat. *scelus* and *sons*, and Greek ἁμαρτάνω, which is supposed to reflect **s*-ə̥$_2$-*m*-*r̥*-*t*- (ibidem, p. 85).

[93] This is not only true of Benjamin Schwartz's analysis of the PIE root and its protean modifications (1947), inspired by the fantastic infixation-theory of Louis H. Gray (1941b), but also – in spite of Joshua Whatmough's cautious appreciation (1943) – of the weird breaking up into alleged constituents of such words as Gmc. **brūδi*- 'bride' or Gk. ἵππος practised by Georges Van Langenhove and his disciple E. Raucq (cf. E. Benveniste, in *Bulletin de la Société de Linguistique de Paris*, vol. 42.2 (1946), pp. 44–45).

[94] Though published in 1947, her *Bijdrage tot de studie van de morphologie van het Indo-Europeesch verbum* was written in 1943. It is based upon the thesis sketched in G. Van Langenhove's posthumous *Linguistische Studiën III* (1946), B. *Le sémantème indo-européen* *H_2y-, pp. 129–134.

[95] Kuiper, 1942; cf. L. Renou, in *Bulletin de la Société de Linguistique de Paris*, vol. 42.2 (1946), pp. 51–52.

[96] Pedersen, 1926, 23–25 (also *Etudes Lituaniennes* [*Det Kgl. Danske Videnskabernes Selskab. Historisk-filologiske Meddelelser*, vol. XIX: 3; Copenhagen, 1933], pp. 21–24).

[97] Pedersen, 1938, 185.

[98] Kuiper, 1942, 20–26.

Along the same line, Werner Winter examined the _saṃprasaraṇa_ reduplication in perfects like _uvắca_, _iyắya_ in Sanskrit and described it as a zero grade reduplication of a root beginning with a laryngeal; he showed that the same formal scheme occurs in the "Attic reduplication", though with a full-grade vowel _-e-_ after the reduplicated cluster of laryngeal plus consonant, as evidenced by Gk. ἀηδών < _*Ḁw-e-Awd-_.[100] Meanwhile E. Benveniste pointed out that Lat. _ēmī_ is a reduplicated perfect of the same type as _dedī_, to be analyzed as _*ə̥$_1$e-ə̥$_1$m-ai_.[101] In the field of Germanic, some controversial evidence was added to Smith's theory of the "Verschärfung",[102] whereas efforts were made to find more traces of laryngeals in Armenian[103] than Austin had listed tentatively when comparing Armenian words with initial *h*- with corresponding lexical items with initial *ḫ*- in Hittite.[104] Besides, Lycian evidence had conclusively been brought into the field by striking phonological and morphological correspondences like the 1st person singular preterite -*χą* in *prñnawaχą* 'I built': Luwian -*ḫa*, Hittite -*ḫun* (with -*un* taken over from the -*mi*-class).[105] Thus, in the late 40's and the early 50's, the time was ripe for a comprehensive synthesis and critical appraisal of the achievements of the "laryngeal theory".

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[99] Kuiper, 1946, 23–29. Survival of consonantal /H/ in the Indic branch proper is also plausible if Kuiper is right in assuming (ibidem, 29–34) that a laryngeal between a nasal consonant and a vowel colors the weak vowel of the preceding syllable into _i_, e.g., Vedic _śimyati_ (<_*k$_e$mH$_2$-ye-ti_) : _śámī_ 'endeavor, effort'; this would provide a nice explanation for Skt. _pūrṇá-_ 'full' versus Av. _pərəna-_, the "laryngeal umlaut" being prevented by the initial labial (_*pr̥H$_2$-nó-_ > Proto-Iranian _pr̥ná-_ [the consonantal allophone of /H/ being lost without trace]: Proto-Indic _*purHná-_ [with _r̥_ > _ur_ like $_e$ > _u_ in _púnar_]; cf. Kuiper, 1947, 202). Worth mentioning is also Kuiper's discussion of the nouns in _-ĭman_, _-ĭtar_ (1947, 203–206) with reference to the divergent treatment of the same by Kuryłowicz in his article in _Rocznik Orientalistyczny_, vol. 15 (1939–1949), pp. 15–18.

[100] Winter, 1950a.

[101] Benveniste, 1949, 17; the Latin contrast _faciō_ : _fēcī_, on the contrary, points to a "theme I" _*dheə̥$_1$-k-_, also to be found in Gk. ἔθηκα, with a zero grade enlarged form _*dhə̥$_1$-k-y^e/$_o$-_ in the derived thematic present, the "ablaut" between the Latin perfect and present reflecting an IE morphophonemic alternation (ibidem, 17–19).

[102] Austin (1946) assumed that IE _*hy_ and _*hw_ yielded Germanic _-k-_ when the IE accent shifted to the preceding vowel, e.g., _*kəhw-́_ > OIcel. _hǫggva_ 'cut, hew', but _*kə́hw-_ > OE _haccian_ 'cut, hew'. This corollary to Smith's theory was not only objectionable from a strictly "laryngealistic" point of view, as W. Lehmann, 1952, 40–41, shows, but also quite precarious as regards the etymological interpretation of the adduced evidence (cf. Polomé, 1950a, 71–72 [note 8]). As for Polomé's modification of Smith's theory to include such "West-Germanic" forms as OHG _brucca_ 'bridge', OS _muggia_ 'midge', OE _suġu_ 'sow', it implied a hardly acceptable structure of the alleged prototypes, which W. Lehmann improved by positing a PIE morphophonemic alternation [bhr$_e$Hw-] : [bhr$_e$Hu-] to account for OIcel. _bryggia_ : _brú_ (1952, 48). The ascription of the "Verschärfung" to the presence of a PIE laryngeal was however severely questioned by F. Van Coetsem, "Le renforcement des semi-voyelles intervocaliques en germanique (_j_/_jj_ > _jj_ > _ddj_, etc.)", in _Leuvense Bijdragen_, vol. 39 (1949), pp. 41–78, but an effort was made by E. Polomé (1950a, 61–68) to reconcile his views with the laryngeal theory.

[103] Polomé, 1950b, where initial _*k‘-_ is assumed to reflect PIE _*xw-_ by falling together with _*hw-_ from PIE _*sw-_ (ibidem, 541). The adduced evidence is scanty and controversial, however. As regards Arm. _k‘ałak‘_ 'town', W. Winter proposed a different etymology in _Language_, vol. 31 (1955), p. 8, connecting it with Gk. πτόλις and, further on, with Skt. _pūr_ on the basis of an assumed IE _*pw$_e$lə-_; however, it remains to be shown that such a prototype accounts for Lith. _pilìs_ 'fortress' as well. As for Gk. πτόλις, Louis Deroy's metrical interpretation of the Homeric alternation πόλις : πτόλις in _L'Antiquité Classique_, vol. 23 (1954), pp. 308–310, is not acceptable, since the word appears in the Aeolian and Arcado-Cyprian dialects and may be reflected by the Mycenean proper name _po-to-ri-jo_ (= Πτόλιος, -ίων; cf. C. J. Ruijgh, _L'élément achéen dans la langue épique_ [Assen, 1957], pp. 75–78). The assumption of an initial _*pw-_ requires further inquiry into the problem of the plausibility of this distribution of the forms with regard to the historical phonology of these dialects; actually an original _*pj-_ seems more likely (cf. Hammerich, 1948b, 13–14, with W. S. Allen's footnote 36 in _Lingua_, vol. 7 (1958), p. 119). Anyhow, H. W. Bailey's demonstration of the borrowing of Arm. _k‘ałak‘_ from Zoroastrian Pahlavi _kl'k_ (_*kalāka-_) in "Ambages Indoiranicae" (_A.I.O.N._, vol. 1

There were actually several of them: Gordon M. Messing,[106] after a thorough discussion of the main issues involved in the "laryngeal theory", takes a rather conservative stand; he rejects most of the views of Sturtevant, Austin, and Smith,[107] and expresses serious doubts as to the "laryngeal" origin of specific Indo-Iranian voiced aspirates.[108] He has less decisive reservations about Kuryłowicz's explanation of Vedic vowel quantities and the Attic reduplication.[109] Though he considers the problem of the existence of a non-apophonic IE **ó* as unsolved,[110] he adopts an interpretation of the Saussurian system which is rather close to Couvreur's,[111] but favors Benveniste's views on the Greek prothesis.[112]

R. Crossland[113] is more concerned with the interpretation of the Hittite evidence: he stresses the fact that there is no unquestionable evidence showing an **a* developed from PIE **e* under the influence of **H* in Hittite, but that the distribution of -*ḫ*- : -*ḫḫ*- is consistent with the assumption of two Hittite /H/-phonemes – a voiceless (post-) velar fricative and a more laxly articulated, more fronted, voiced fricative, roughly corresponding to the *a*-coloring H_2 and the non-coloring H_1 of Pedersen. Crossland

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[1959], pp. 118–120; cf. also W. Belardi, "Arabo *qalʻa*", ibidem, pp. 147–150) excludes the use of this word in the context of the alleged reflexes of laryngeals in Armenian.

[104] Austin, 1942, with a critique by Kerns and Schwartz, 1942; cf. also Sturtevant, 1942, 29–30.

[105] Pedersen, 1945, with Sturtevant's reservations in *Language*, vol. 24 (1948), pp. 315–316, as to Lyc. *q*(*q*) = Hitt. *ḫ*(*ḫ*); cf. also F. J. Tritsch, "Lycian, Luwian and Hittite", in *Archiv Orientální*, vol. 18 (1950), pp. 504–508, 515–517.

[106] Messing, 1947.

[107] Cf. Messing, 1947, 200–203, against Sturtevant's explanation of the Greek "aspirated" perfect and perfect in -κ-; ibidem, 203–206, against Smith's theory of the "Verschärfung"; ibidem, 195–196, against Austin's assumption of a "laryngeal" origin of Greek rough breathing and of Homeric lengthening before resonants (cf. Austin, 1941, 91–92).

[108] Cf. Messing, 1947, 184–185, where he rightly wonders about the explanation Kuryłowicz would give of Skt. *hṛd*- : Gk. καρδία 'heart' or of Ved. *majmán*- 'greatness, size' : *mahī*, and strongly doubts the accuracy of Pedersen's assumption that Hittite -*kk*- in *me-ik-ki-iš* 'great' reflects a cluster **gH*. Messing, moreover, definitely denies (ibidem, 185–186) the voicing of /p/ by *ʔ̣$_3$, postulated by Kuryłowicz (1935, 54) in Skt. *pibati*; he refers to Pedersen's rather disputable argument in favor of a possible PIE consonant shift **b*- > *p*- (1938, 188, note 3, developed in 1951, 12–16), but prefers to assume a dissimilation process. — Cf. also Messing, 1947, 226–228, against Sturtevant's "voiced laryngeal" /γ/ (1940b).

[109] Cf. Messing, 1947, 178–180, 196–197.

[110] Cf. ibidem, 216–220.

[111] Cf. ibidem, 221, 223–225, 230–231.

[112] Cf. ibidem, 198–199 (with the noticeable reservation that no decisive argument has been advanced by Benveniste to prove that an initial laryngeal has to be posited for all roots apparently beginning with a vowel).

[113] Crossland, 1951.

carefully re-examines the conditions of loss of these phonemes and concludes that the Hittite material provides no valid reason to posit either a non-coloring laryngeal like Sapir-Sturtevant's /'/ or Kuryłowicz-Benveniste's /ə̥$_1$/, or an *a*-coloring laryngeal like Sapir-Sturtevant's /:/ or Kuryłowicz's /ə̥$_4$/, never represented by *ḫ* or *ḫḫ* in Hittite. The puzzling contrast Hitt. *weḫzi* 'turns' : Arm. *z-awdem* 'bind' versus Hitt. *ḫwanteš* 'winds' : Gk. ἄησι 'blows (of wind)' can easily be solved by assuming that the reflex of the *a*-coloring laryngeal has been lost by dissimilation in initial position in $*H_2weH_1$-.[114]

Ladislav Zgusta,[115] after surveying both the basic assumptions of the "laryngeal theory" and the Hittite evidence, shows conclusively that Bonfante and Petersen have failed to provide a satisfactory explanation for a secondary development of the /h/-phoneme in Hittite. He also strongly expresses his dissatisfaction with the maze of contradictory hypotheses about PIE laryngeals, which have often been rather recklessly built up on the shaky basis of limited and partly controversial etymological material. Therefore he concludes very sensibly that, in definite cases, Hittite *ḫ* reflects an IE phoneme /H/, showing consonantal and vocalic allophones like the resonants.[116] Only further inquiry into the problem of consonant gemination in Hittite will indicate whether the distributional pattern *-ḫ-* after front vowel : *-ḫḫ-* after back vowel entitles us to assume more than one laryngeal.

Edgar Polomé[117] tries to reconcile the conflicting theses and suggests a system of three laryngeals, describing initial Hittite *a-* corresponding to *a-* in other IE languages as a reflex of any of these laryngeals plus the reduced grade vowel $_e$, and assuming the same origin for the Greek and Armenian prothesis,[118] while, with Sturtevant,[119] he derives Brugmann's *ə from the same reduced vowel plus any following laryngeal, but sticks to the principle that Greek retains the three distinct qualities *e*, *a*, *o* as traces of the coloration of the contiguous laryngeal. His rather rigid patterns however require too much procrusteanizing of the available material.[120]

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[114] Ibidem, 119. Sturtevant's assumption of the loss of /x/ and /γ/ before *w* (1942, 64) is merely an *ad hoc* hypothesis to reinterpret the alleged alternation *hu-* before consonant : *w-* before vowel, posited by W. Petersen, 1939, 175-183, as a Hittite development "from a laryngeal stop used in preparation for the vigorous utterance of an initial vowel". The adduced evidence is indeed inconclusive, misinterpreted or irrelevant, as has been clearly shown by Polomé (1950b, 567–569) and Zgusta (1951a, 457–460).

[115] Zgusta, 1951a.

[116] Zgusta (ibidem, 438–440) carefully avoids getting entangled in the dispute about the syllabicity of /H/ and suggests an extremely simple patterning of vowel gradation in the *seṭ*-roots before consonantal initial of the derivative morphemes:
(1) **CeRH̥-* (= Benveniste's "theme I"), e.g., Gk. τελαμών 'cross-belt';
(2) *C_eRH̥-*, e.g. Gk. τάλαρος 'woven basket, wicker tray';
(3) **CR̥H-*, e.g. Gk. τλητός 'enduring',
but he does not give any hint as to the relative chronology of types (2) and (3).

[117] Polomé, 1952a.

[118] Cf. ibidem, 1042–1049. As regards initial laryngeal before *w*, Polomé combines the views of Austin (1941) with his own assumption on Armenian reflexes of these clusters (1950b). His derivation of Arm. *g-* from *ə̥$_1$w-/*ə̥$_3$w- in *z-gest* 'garment', *gełmn* 'fleece', seems however rather arbitrary for lack of sufficient illustrative material, though more evidence could be adduced, e.g., Arm. *gełj* 'yearning' : Gk. (Hom.) ἐέλδωρ 'longing'; Arm. *gog* 'say': Lat. *uoueō* 'vow' (*ə̥$_1$w- on account of Gk. εὔχομαι 'pray'). Besides, in Arm. *gočem* 'shout' (Polomé, 1950b, 564), *g-* actually reflects *ə̥w- in the "theme II" *ə̥w-ék^w- : "theme I" *ə̥éw-k^w- in Avestan *aok-* 'speak' (Benveniste, 1935, 155). Nevertheless, the fact that **w-* also appears as Arm. *g-* makes this evidence inconclusive (cf. also Crossland, 1958, 86).

Winfred P. Lehmann's *Proto-Indo-European Phonology* is a more ambitious enterprise, as the author attempts to give a structural description of the pre-dialectal Indo-European phonemic system and to trace back the various stages of its diachronic development. This survey accordingly inserts the results of the laryngeal theory into their proper frame, but instead of confining himself to a careful evaluation of the research done in this field, Lehmann sets out on a thorough discussion of phonological problems of Germanic (lengthened /w/ and /y/, /g/ and /k(k)/ corresponding to PIE /w/; reflexes of laryngeals contiguous to PIE /r l m n/, OHG *-r*-preterits, the origin of PGmc. long close *e*), for which he offers either carefully revised explanations or challenging original solutions. Unfortunately, except for some very neat cases of "Verschärfung", the adduced evidence is hardly conclusive to support the legitimacy of the "laryngeal" approach in accounting for the examined features of Germanic phonology.[121] In connection with the study of the dialectal development of the PIE resonant system, the treatment of "initial *y*" in Greek is also reexamined: though he accepts Sapir's assumption of a development of voiceless initial laryngeal plus *-y-*/*-w-* to rough breathing, Lehmann claims that, since the other sources of Greek ζ point to PIE clusters, ζ is a reflex of PIE initial /γy/ in ζωστός 'girt', ζυγόν 'yoke', ζειά 'spelt', ζέω 'seethe' and ζΰμη 'leaven'.[122] However, since he cannot adduce any really clinching evidence to back up the assumption of an initial voiced laryngeal in the implied root-nuclei,[123] his demonstration remains unconvincing. These controversial issues do not at all affect the validity of his structural reconstruction of the Proto-Indo-European phonemic system in the light of the "laryngeal theory". Here, Lehmann makes a most commendable effort to account for the complexity of the reflexes of the laryngeal phonemes in the weak grade: operating with an unaccented vowel phoneme /$_e$/ with more central allophones than those of the stressed vowels, he also shares Sturtevant's opinion that the traditional *ə of Indo-Europeanists is to be reconstructed where /$_e$/ stood before laryngeals, and he adduces Greek and Sanskrit evidence to show that this unaccented vowel, as well as [r̩], was actually influenced or colored by a neighboring laryngeal. This leads him to an independent restatement of Kuiper's theory on the "laryngeal umlaut"[124] to account for Gk. o in forms like the aorist ἔμολον or κόρση 'temple (side of head)', which, in turn, besides the examples usually quoted as evidence for *ə̥$_3$ (δίδωμι, πέπωκα, πῶϋ, etc.), induces him to ascribe a limited *o*-coloring effect to Sturtevant's /γ/. As for the troublesome Greek doublets θάνατος 'death' : θνητός 'dead', he accounts for them by postulating that "/$_e$/ was found between resonant and laryngeal in forms where the immediately following syllable was not accented, e.g., Aeol. ἐστοροται, which would have had the accent on the augment, and *ἄθανατος . . . which would have had the accent on the negative prefix . . . /$_e$/ was lost, however, when the following syllable was accented, e.g., θνητός, στρωτός." This statement has to be understood in the light of the previous suggestion that the Greek reflexes of lengthened [r̩] were originally in complementary distribution: *rā* before consonant and *ara* before vowel. What Lehmann actually means is that the phonemic sequence /r$_e$H/ would be realized as [r̩rə] according to Edgerton's patterns of allophonic variation of the PIE resonants,[125] which would account rather nicely for Gk. βάραθρον 'gulf' pointing to PIE [g^{w}r̩rə], parallel to Ved. *giráti* < PIE [g^{w}r̩reti]. However, upon closer examination, Lehmann's ascription of the alternant forms to accentuation hardly seems satisfactory, especially with substantives like παλάμη 'palm', ταραχή 'trouble' (: Hom. τέτρηχα), δάμασις 'taming' (: ἄδμητος). Besides, one wonders whether Sanskrit evidence backs up the parallel assumption of /tr$_e$H/ to account for Vedic *tīrṇá-* 'crossed' as compared to /trH/ in Gk. τρητός 'perforated'. Cases like Skt. *śíras-* : *śīrṣá-* 'head' rather point to /rH/ with loss of the laryngeal before vowel in Proto-Indo-Iranian [cr̩rH], but development of Pre-Vedic [irH] to Vedic *īr* before consonant. Positing a PIE /$_e$/-phoneme is at any rate very controversial, and it may appear preferable to operate with "a non-

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[119] Sturtevant, 1941b, 181ff. As the laryngeals are assumed to function exclusively as consonants in the "ablaut" system, the reduced grade of **péH-* is expected to appear as *$p_{e}H\acute{-}$, parallel to **pḗt-* : *$p_{e}t'$- (cf. also Lehmann, 1952, 111).

[120] This applies especially to the treatment of the Sanskrit words with initial *kh-* (Polomé, 1952a, 466–467): *khaṇḍá-* 'piece' is a non-IE word (cf. F. B. J. Kuiper, *Proto-Munda Words in Sanskrit* [Amsterdam, 1948], 48); *khadikā* 'fried grain' might very well be a Dravidian loan; the meaning of *khacati* is not well established (applying to teeth, either "project" or "glimmer"); *kháñjati* is presumably Middle-Indic (< **skañj-* : Gk. σκάζω), etc.

[121] Cf. the reviews by C. H. Borgstrøm in *Norsk Tidsskrift for Sprogvidenskap*, vol. 17 (1954), pp. 561–62, and E. Polomé in *Revue Belge de Philologie et d'Histoire*, vol. 31 (1953), pp. 538–542, and the further comments by Zgusta (1955, 198–201) and Polomé (1959). – On the problem of Gmc. *$\bar{e}_2$, cf. also Fr. Van Coetsem, *Das System der starken Verba und die Periodisierung im älteren Germanischen* (Amsterdam, 1956). Chap. III: "Der Ursprung des sog. $\bar{e}_2$" (pp. 22 ff.).

[122] This view had already been advanced from a different phonological pattern, but without integration in the pre-Greek phonemic system, by L. L. Hammerich (1948b, 14; cf., however, Polomé, 1952a, 467–469).

[123] Luwian *ḫi-iš-ḫi-ya-an-ti* 'they bind' may very well be a present with reduplication of the type evidenced by Skt. *tíṣṭhati*, as suggested by Crossland (1951, 101, fn. 1); in Hittite *iš-ḫa-a-i*, the initial *i-* is presumably the Anatolian prothetic vowel before initial cluster of sibilant plus voiceless obstruent (cf. Hitt. *išpant-* : Gk. σπένδω; Hitt. *iškallāi-* : Lit. *skélti*). Another example of the occurrence of this *i-* before initial /sH/ is Hitt. *išḫamāi-* 'song' : Ved. *sā́man-* 'song' (cf. Benveniste, in *Bulletin de la Société de Linguistique de Paris*, vol. 50 (1954), 39–40). Therefore, Hitt. *išḫiya-* 'bind' plainly corres-

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ponds to Skt. *syáti* and has nothing to do with Gk. ζώννυμι 'gird' (cf. also Crossland, 1958, 87). As for ζυγόν, assuming an initial laryngeal implies a rather unwelcome modification of Benveniste's neat analysis of Skt. *yunákti* as a "theme II" with nasal infix **yu-n-ég-* (1935, 161; cf. A. Martinet, in *Word*, vol. 9 (1953), p. 287; H. Hoenigswald, in *Language*, vol. 30 (1954), p. 471, fn. 6) – a modification which J. Puhvel would now advocate (1960, 32, 71)! – On the other examples quoted by Lehmann, cf. Zgusta, 1955, 201–204, with Puhvel's rejoinder (1960c, 71–72).

[124] Kuiper, 1947, 199; Polomé, 1952a, 455. – Cf. also Kuiper's remarks on Lehmann's presentation of the evidence, in *Lingua*, vol. 5 (1956), 322–323.

[125] Zgusta (in *Bibliotheca Orientalis*, vol. 11 [1954], p. 5) does not appear to be aware of these implications of Lehmann's statement (1952, 89).

phonemic vowel-like segment occurring in certain consonantal environments".[126]

The important thing is that Lehmann's work has seasonably refocussed the attention on the main issue involved in the "laryngeal theory", i.e., the diachronic development of the PIE ablaut system with special regard to the origin of the complex dialectal weak grade reflexes, especially in the case of the so-called "long syllabic semivowels". No doubt his reconstruction of the earliest stages of pre-IE, for which he acknowledges having been influenced by H. Borgstrøm's glottogonic speculations,[127] is no more than a brilliant "vue de l'esprit", but challenging as it is, it has the great merit of reminding "laryngealists" of the necessity to concentrate their efforts on the reconstructed standard proto-Indo-European, for which task, as Puhvel puts it: "cross-Indo-European analysis offers better hopes of significant insights into prehistoric structural realities than a constant reference to late dialectal idiosyncrasies".[128]

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[126] Henry M. Hoenigswald, *Language Change and Linguistic Reconstruction* (Chicago, 1960), p. 134. – The problem of the phonemic status of /$_e$/ has been a disputed issue in recent years: whereas F. Edgerton's dismissal of the evidence for "shwa secundum" in Sanskrit (in *Language*, vol. 10 (1934), pp. 235–265; cf. also vol. 19 (1943), pp. 119–121) had been backed up by W. Petersen's careful reexamination of the Latin and Greek evidence (in *Language*, vol. 14 (1938), pp. 39–59; cf. also H. Galton, in *American Journal of Philology*, vol. 71 (1950), pp. 180–188), E. H. Sturtevant (1943) argued very strongly in favor of the recognition of PIE *ь, which he also assumed in reconstructing the syllabic alternants of PIE resonants that are required by Sievers' law (cf. Sturtevant 1942, 32–33). Sturtevant posited *ь as well for his Indo-Hittite proto-language, where its combination with any of the four laryngeals yielded IE *ə (cf. Sturtevant 1942, 71–72; 1948, 260–261; 1951, 33–34). Lehmann adopts Edgerton's interpretation of Sievers' Law, but sticks to Sturtevant's reduced vowel to save the strictly consonantal nature of the laryngeals. This does not however imply any phonemic status of *$_e$, which may be of the same nature as the anaptyctic vowels which occur in definite environments in Greek (cf. M. Lejeune, *Traité de Phonétique Grecque* [Paris, 1947], pp. 177–180; M. Grammont, *Phonétique du grec ancien* [Paris, 1948], pp. 258–269). Therefore, Hoenigswald reinterpreted Edgerton's statement about the syllabic allophones of the "liquids" and nasals in terms of the automatic development of a vowel segment in definite consonant sequences (in *Language*, vol. 29 (1953), pp. 288–292). For this automatic anaptyctic vowel, he used the notation $_e$, which amounted to marking syllabicity in the way W. S. Allen (in *Archivum Linguisticum*, vol. 3 [1951], pp. 131–132) elaborated on the suggestion of Benveniste (1935, 162–163) about "vocalized" consonants in Iranian _*puxta_ < PIE _*ə$_3$p^o k^{w}to-_ and Avestan *dəbənao-* (: Skt. *dabhnóti*). In these cases, the sonancy plainly has its separate phonetic identity, though phonemically, it is nothing but a very restricted allophone of the consonant phoneme appearing in the zero grade (Collinge, 1953, 81). It is therefore inaccurate to assume, with Hoenigswald (*Language Change and Linguistic Reconstruction*, p. 134, fn. 10), that this amounts to reconstructing "an allophone of Ø" in Gk. πίτνημι: actually, the vowel segment in the [$_e$t]-allophone of PIE /t̥/ has merely become a part of the /i/-phoneme in the course of the diachronic development of Greek through merger with the allophones of this vowel in the environment/# C - C/. By the use of this approach the reconstruction of a prototype _*s$_e$nH-_ to account for the "laryngeal Umlaut" in Vedic *sína-* 'supply, provision' becomes obvious, $_e$ developing automatically before /n/ in /snx/ (cf. Hitt. *šanḫḫ-* 'demand'), as it does before /r/ in /d^{h}rγ/ in Gk. ἔθορον. In sequences of the type /prH/ plus consonant, $_e$ might be expected to develop after /r/: this would account for contrast ἔπορον : πέπρωται 'it has been fated', with [p$_e$rγ] before thematic endings and [pr$_e$γ] before athematic endings, but would imply that Kuryłowicz (1935a, 57) was right in positing Skt. *pāmáḥ* : *pā́mi*, parallel to *imáḥ* : *émi*, as the reflex of [p$_e$x] before the 1st person plural ending _*-mes_ in /pxmés/ : /péxmi/. Indeed, as Collinge (1953, 80) puts it, if [$_e$t] is credited with producing regularly *at*, e.g. /dkC/ > [d$_e$kC] > Gk. _*dakC-_ in διδάσκω, [$_e$H] may be expected to produce *aH* > *ā* (cf. also Crossland, 1952, 143; 1958, 96). Through this bias, Kuryłowicz's complex schemes of "Schwebeablaut" may appear under a quite different light, as resulting from predictable PIE anaptyxis, e.g., Gk. πλητός, γνωτός < _*pl$_e$'tó-_, _*ǵn$_e$γtó-_: _*d^h'$_e$ tó-_, *dγ$_e$tó-* > Gk. θετός, δοτός. Phonemically, however, all of them would merely represent the PIE zero-grade forms /pl'tó-/, /ǵnγtó-/, /d^h'tó-/, /dγtó-/. – Although all this is highly speculative, one may wonder whether it is ultimately safer to assume analogical restoration of the full-grade vowel (cf. Collinge, 1953, 83–87, with further comments on the whole question in 1956, 121–127).

[127] Cf. Lehmann's reference (1952, 112, fn. 1) to C. H. Borgstrøm's basic article (1949) and the latter's further elaborations of his views (1952, 1953a, 1953b). For a tentative application of Leh-

This was also emphasized by J. Whatmough in his report to the VIIth International Congress of Linguists in London in 1952: "our researches . . . call for a clear notion of structural distribution and function in Indo-European itself".[129] To this point L. L. Hammerich added very pertinently:

"we should not omit the phonetic point of view – that is to say that we should not propose any theory which cannot be supported with knowledge of how the sounds treated behave in living languages".[130]

There soon was some response to these appeals, in a rather unobtrusive way, with Martinet's article on non-apophonic *o*-vocalism in Indo-European, which was to start a chain reaction that shook the foundations of many a seemingly well-established solution to IE phonological and morphological problems. But, in the meantime, the rather futile quibbling over the number of laryngeals went on,[131] while further refinements of the extant theories were proposed.[132]

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mann's reconstruction of the stages of early Proto-Indo-European diachronic development to morphology, cf. Lehmann, 1958.

[128] Puhvel, 1960a, 8.

[129] Whatmough, 1952, 138.

[130] Hammerich, 1952, 465 (cf. the parallels from Neo-Indic languages quoted by A. Master, 1952, 464).

[131] Lehmann (1952, 98) postulates four laryngeals for PIE, but admits that three would do to account for their differing effects on vowel timbre:
/ʔ/ (*ə̥$_1$) with no effect on contiguous vowels;
/A/ (*ə̥$_2$) changing the timbre of contiguous vowels to *a*;
/γ/ (*ə̥$_3$) with no effect on contiguous vowels unless it coalesces with them, in which case it gives them an *o*-timbre. This statement about *ə̥$_3$ attempts to reconcile the discrepant front vowel occurring in contiguity with *ḫ* in Hittite, e.g., in *ḫi-in-ik-zi* 'bows' : Gk. ὄγκος 'curve' with the IE evidence currently adduced to assume a non-apophonic IE **ó*, but this forces him to posit two parallel roots /peA/ : /peγ/ to account for Hitt. *pa-aḫ-ḫa-aš-mi* 'protect', Lat. *pāstor* 'shepherd' : Gk. πῶϋ 'herd', ποιμήν 'shepherd' (ibidem, 96). Similarly, /A/ is split into /h/ (*ə̥$_4$) and /x/ (*ə̥$_2$) on the basis of Kuryłowicz's makeshift escape from some Hittite difficulties with his original equation *ə̥$_2$ – Hitt. (*ḫ*)*ḫ*, e.g., 1 sg. -*ḫa* < *-*ə̥$_2$e* vs. 2 sg. -*ta* < *-*tə̥$_4$e*, reflected by Indo-Iranian -*a*, without aspiration of the preceding voiceless stop, vs. -*tha* (cf. Kuryłowicz, 1935, 254, and Lehmann's statement, 1952, 84, with fn. 4). When Eric Hamp (1952a, 112) claims that Hitt. *ešzi* : *ašanzi* versus Skt. *ásti* : *sánti* requires a third laryngeal in Hittite, in addition to the two admitted by Crossland, and reflects PIE **Hés-ti* : **Hs-ónti*, he actually does so on the basis of two disputed postulates: (1) any PIE root with an apparently vocalic initial has actually a laryngeal initial; (2) laryngeals were "vocalized" in unaccented syllables. If Vedic lengthening in compounds or Benveniste's brilliant explanation of Lat. *ēmī* and the like provide some clues as to the presence of initial laryngeals in roots traditionally described with a vocalic initial, only the generalization of the pattern /CVC/ within a definite theory of the root makes such an assumption compulsory in every case. However, whoever admits Lehmann's

Among the important new views giving occasion for fruitful discussion, T. Burrow's article on "Shwa in Sanskrit"[133] and H. Hoenigswald's study on "Laryngeals and *s*-movable" deserve special mention. The former makes a deliberate effort to eliminate *i* as a reflex of Brugmann's *ə in Indo-Iranian by reanalyzing *sthitá-* as *stH-ita- and considering *-i-* as part of the suffix, which implies that Avestan *ptā* (*ptar-*) : *pita* (*pitar-*) actually reflects a suffix-variation *-tar-* : *-itar-* of which Skt. *pitā́* contains the

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/$_e$/, can account for Hitt. *ešzi* : *ašanzi* without requiring a laryngeal, by positing an alternation *és- : $_e$s$^{\underline{\prime}}$. It is even possible to describe this alternation as merely morphophonemic by assuming, with Crossland (1958, 95), that unaccented /es/ was realized as [əs] in the IE dialect from which Hittite evolved (for further possible "explanations", cf. Kronasser, 1962, 21-26). But if one posits a laryngeal – identifying such entities by patterning only (cf. Hamp, 1952b, 472) – the problem of the vocalization of /H/ has to be solved on the level of the recognition of the allophones of this phoneme in various environments, as Brosman attempted (1957) by treating /H/ as a resonant whose allophones fit neatly into Edgerton's patterns. It is indeed irrelevant for the reconstruction of the PIE phonemic system to know whether one believes, with Albert Cuny, that the Saussurian "coefficient sonantique" had both vocalic and consonantic variants, or sticks to Kuryłowicz's opinion that the so-called vocalization of *ə̥ is merely a reflex of $_e$, whatever the origin of the latter is – reduced grade in the ablaut system or predictable anaptyxis (cf. also Collinge, 1956, 121–127). There is however no internal evidence in Hittite to back up the assumption that an alternation *e* : *a* in the 3rd person singular versus plural forms of the present indicative active of an athematic verb necessarily reflects an alternation *e* : Ø in contiguity with a laryngeal: the only 3rd person plural forms of roots of the type /HeC/ actually occurring are *ḫaššanzi* 'they bear, beget' and *ḫaššanzi* 'they open', the latter alternating with *ḫešanzi*, but the 3rd person singular of both reads *ḫa-a-ši*, with the *i-* ending of the *ḫi*-conjugation except for one example of *ḫašzi* 'he opens' (I BoT III 148 III 13, according to J. Friedrich, *Hethitisches Wörterbuch, 1. Ergänzungsheft* (Heidelberg, 1957), p. 5); *weḫ-* 'turn' shows an alternation (3rd sg.) *weḫzi* : (3rd plur.) *waḫanzi*, but the forms *waḫzi* : *weḫanzi* also occur; anyhow, an IE ablaut /e/ : Ø as in *ḫuekzi*, *ḫukanzi* 'bewitch' would imply a 3rd plural *uḫanzi. Besides, the same alternation *e* : *a* also occurs where no laryngeal is implied, e.g., in *šešzi* 'sleeps' (cf. Skt. *sasti*) : *šašanzi* (~ *šešanzi*); *uešta* 'puts on clothes' (3rd sg. middle; cf. Skt. *váste*) : *waššanzi* (~ *weššanzi*). Accordingly, Hamp's remark is methodologically unjustified, as its only motivation is his preconceived theory of the IE root, which in turn would imply the assumption of a fourth laryngeal in Hittite if his reasoning were correct, for, whether Hitt. *a-uš-zi* : *ú-wa-an-zi* 'see' is connected to Gk. αὔως (ἕως), Lat. *aurōra* 'dawn' (Sturtevant) or to Skt. *-avati* 'notices', Gk. ἀίω (*awis-) 'perceive' (Pedersen), the paradigmatic patterning would imply /Aew/ : /Aw/, with an initial *a-* coloring laryngeal which is not reflected by *h-* in Hittite, i.e., Kuryłowicz's *$ə̥_4$, for which Hamp now assumes Albanian evidence (1960d, 58–63; cf. also 1952b, 472; 1953a, 140; 1953c, 124; 1954, 41; 1957a, 87–89; 1958a, 238).

[132] A few examples are G. Redard's careful elaboration of Benveniste's etymological connection between Skt. *átka-* 'garment', Hitt. *ḫatk-* 'close' and Lat. *decet*, *doceō*, as reflexes of PIE *ə̥éd-k- : *ə̥d-ék- (1954); W. Lehmann's further assumption of reflexes of laryngeals at the morphological or syntactic level in Germanic (1954, 1957); R. Ambrosini's ingenious etymology of ζέφυρος, explaining its initial ζ- as a reflex of *$ə̥_3$y- (1956; cf. Puhvel, 1960c, 71–72), and E. Hamp's painful struggle with the etymology of such weird lexical items as Goth. *iup* (1954) or Cypr. υϝαις ζαν (1953b; cf. M. Lejeune, in *Bulletin de la Société de Linguistique de Paris*, vol. 50.1 [1954], pp. 76–78; Puhvel, 1954, 454–456). Hardly convincing is M. Vey's very conscientious effort (1955) to establish a phonetic development of the PIE sequence /ClHC/ into voiceless aspirate plus *ala* plus obstruent in Greek, through "anticipation" of /H/, e.g., *dl̥H_1ghyə > *dH_elH_1ghyə > *dhálassa > Gk. θάλασσα 'sea' – actually 'the long (road)', the word being closely associated with δολιχός 'long' < *dolH_1ghos; cf. W. Cowgill's discussion (1960a, 138–140) of this theory, whose semantic basis is quite inacceptable in the case of θάλασσα, as this word originally means "salt-water" (cf. Albin Lesky, *Thalatta. Der Weg der Griechen zum Meer* [Vienna, 1947], pp. 8–11).

[133] Burrow, 1949, cf. also 1955, 104–106; 186–189.

second![134] Accordingly, the PIE laryngeals are never reflected by *i* in Sanskrit, where they account for the long syllabic resonants and for the voiceless aspirates, as well as for the contrast *ványa-* 'of the forest' : *udaníya-* 'watery' ($<$ *$i + a : i + H + a$); their occurrence is confirmed by the coloration of a following vowel in other Indo-European languages, e.g., /k^{w}riH/ > Skt. *krī-* 'buy', but the aorist **e-k*^{w}*riH-e-to* is reflected by Gk. ἐπρίατο with α from /He/. However, to offer a tentative solution to a problem of historical phonology, Burrow has to increase the complexity of the derivational patterns of Indo-Iranian to such a degree that his hypothesis completely fails to convince.[135]

Not conclusive either is Hoenigswald's argument that the so-called PIE *s-* movable also occurred before laryngeal plus vowel, but that the laryngeal was lost at an early stage of the predialectal development of Proto-Indo-European in this position, "before the difference between *e* and *a* had become distinctive",[136] since we have at least two examples of initial /sH/ before vowel in Hittite, namely *išḫam-* 'sing' : Ved. *sā́man-* 'song' and *išḫiya-* 'bind' : Skt. *syáti*,[137] while most of the alleged etymologies are very disputable.

Worth mentioning are also the contributions of Puhvel on the PIE desiderative suffix,[138] Risch on the Hittite verbs of the type *teḫḫi* : *dāi*,[139] Kuiper on the shortening of final vowels in the Rigveda,[140] Szemerényi on Latin *rēs* and the Indo-European long-diphthong stem nouns,[141] Minshall on the development of initial voiced laryngeal + PIE /y/ in Armenian and Albanian.[142] An important consequence of research on reflexes of laryngeals in the various IE dialects is the renewal of the study of Balto-Slavic intonations: as early as 1936, André Vaillant had made /H/ responsible for the rising intonation in the reflexes of the PIE patterns /CeRH-/ or /CeHR-/ – a theory he then elaborated in his comparative grammar of the Slavic languages.[143] J. Kuryłowicz however claimed that the origin of the Balto-Slavic intonations was to be explained on the dialectal level in connection with the accent shift described by F. de Saussure.[144] Though Kuryłowicz's thesis has not met with general acceptance,[145] a direct connection between the occurrence of PIE laryngeals and Balto-Slavic intonation patterns remains very doubtful.[146]

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[134] As M. Mayrhofer pointed out in *Deutsche Literatur-Zeitung*, vol. 76 (1955), col. 900, the Skt. form should be **phitár-*, as a reflex of **pH-itér-*, if the word is derived from *pā-* 'protect' (cf. Burrow, 1949, 50–51).

[135] Even in the case where Brugmann's **ə* is assumed to be reflected by Skt. *a*, e.g., in *dháyati* 'sucks', Burrow rejects it, reanalysing the verbal form as *dh-áyati*, allegedly parallel to *śv-áyati* 'grows' (1949, 43, fn. 1), both of which he assigns originally to the Xth class, with zero grade, like *citáyati* (1955, 330). The similar analysis of *kṣáyati* 'rules' as *kṣ-áyati* (1949, 44, fn. 2) shows how arbitrary all this is: here, we are indeed supposed to find confirmation for the isolation of *kṣ-* in *kṣ-atrá-*, whose first *-a-* would belong to the suffix, and in Greek κτη- for **ks-tē-* (sic!)...

[136] Hoenigswald, 1952, 184.

[137] Vide supra, note 123; cf. also Cuny, 1934a, 202.

[138] Puhvel, 1953b – actually a first draft of his expanded study on the desiderative in *Laryngeals and the IE Verb* (1960, 41–52).

[139] Risch, 1955. His basic assumption that the PIE ablaut *é$ə̥_1$/ò$ə̥_1$/$ə̥_1$ is reflected by *āi*/*āi*/*i*(*i̯*) in Hittite is however fraught with phonological difficulties (cf. Crossland, 1958, 97–98; Jens Holt, in *Bibliotheca Orientalis*, vol. 15 (1958), p. 155).

[140] Kuiper, 1955 – a brilliant elaboration of the *sandhi* rule described in his 1947 article (pp. 208–212): final short vowel plus laryngeal resulted in a long vowel before an initial consonant of the following word, whereas the laryngeal was lost before an initial vowel, but with the development of a semivocalic glide in the case of the close vowels, e.g., *patniH* + *acchaH* > Vedic *patni(y) acchā*, as suggested by W. S. Allen in *Sandhi* (The Hague, 1962), p. 35, fn. 18. Here, Kuiper explains the short endings appearing before consonant as hints of the survival of /H/ in the pre-editorial text of the R̥g-Veda: in *bhū́ri cid ánnā sám íd atti sadyáḥ* (VII, 4, 2b), the "short" final *i* of *bhū́ri* actually indicates that /i/ was still metrically long by position in the ending *-iH* before an initial consonant in the speech of the poet!

[141] Szemerényi, 1956 – a very informative article in which Szemerényi presents some challenging root-analyses without being aware that he actually restates Cuny's views on the so-called "monosyllabic heavy bases" (1912, 109–110), e.g., Hitt. *daḫḫi* 'take' : IE **dō-* 'give' < *de$ə̥_3$-, which is assumed to reflect a "theme II" *$ə̥_1$d-é$ə̥_3$- to *$ə̥_1$ed- 'take' (> 'eat').

A genuine renewal in laryngeal research was accordingly only brought about by Martinet's elaboration of his views on non-apophonic *ó* in IE,[147] in which he applied componential phonemic analysis to the "laryngeal problem". Noticing that roots in which *ə̥$_3$ is usually posited, e.g., *dō-* 'give', show a tendency to develop a [u̯] before a following vowel, e.g., Cypr. δοϝεναι, Skt. *dāváne*, he assumes that if **ō* is conceived of as resulting from the coalescence of *e* + an *o*-coloring laryngeal, the [u̯]-glide must be a trace left by this laryngeal. Referring to the early assumption of a labiovelar component in the articulation of the *o*-coloring laryngeal, he then symbolizes it as /A^w/ and assumes that in **-e*A^w*t-*, reflected in Greek and Latin by *-ōt-*, both the tongue retraction and the lip-rounding articulation of /A^w/ are transferred to *e* together with its duration. In _*-eA_^{w} + _o-_, however, the lip-rounding component of /A^{w}/ will be preserved, first as a glide, and then as an independent phoneme, so that only the retraction, accompanied by duration, will be transferred to /e/, hence the development _*-eA_^{w} + _o-_ > _*-ā_^{w}_o-_ > _*-āwo-_ evidenced by Lat. _octāuus_ : _octō_ as well as Lat. _flāuī_ < _*bhleA_^{w} + _ai_, _strāuī_ < _*streA_^{w} + _ai_. This new explanation of the Latin _-uī_-perfect has far-reaching consequences: Lat. _flō_ : _flāmus_ is due to the reshaping of an original paradigm _*bhleA_^{w}_-mi_ > _*flōmi_ : _*bhl̥A_^{w}_-mos_ > _flāmus_, whereas the "root" _*streA_^{w}- also appears in the _n_-infix present _*str̥neA_^{w}- > Skt. _str̥ṇā́ti_, OIr. _sernaid_ and ultimately Lat. _sternō_, and in the verbal adjective _*str̥A_^{w}_-tó-_ > Gk. στρωτός, Lat. _strātus_. Martinet even suggests that the _*u_ of Skt. _str̥ṇóti_ and Gk. στόρνυμι might be an analogical extension of the ^{w} "exuded" from /A^{w}/.[147a] In a further article,[148] after noticing the frequent occurrence of the suffix _-āk-_ in adjectives applying to human beings like Lat. _audāx_, Martinet suggests its _-k-_ may actually reflect the _a_-coloring laryngeal implied by _ā_ < _*-eH_$_{2}$-. This voiceless velar fricative[149] can indeed have been "hardened" when immediately followed by the ending _-s_ of the nominative singular in the same way as Gmc. [χ] yielded [k] before [s] in English _six_. The change must have taken place as a consequence of the development of a morphological contrast between the masculine and the feminine gender in late Indo-European in the names of living beings by the addition of a nominative _-s_ to the consonantal stems in _-eH_$_{2}$ in the masculine, e.g. _new-eH_$_{2}$ 'new', with the individualized nominative masculine _*new-eH_$_{2}$_-s_ > _*newăks_, versus the accusative _*new-eH_$_{2}$_-m_ > _*newām_. The long vowel must have been carried over from the oblique cases with consonantal ending to the nominative, whereas the _-k-_ was analogically transferred through the whole paradigm, hence the Latin words in _-āc-_ and the Greek nouns in -ᾱκ- of the type of νέᾱξ; in other cases, _-ăk-_ was preserved and thematized, e.g., in Skt. _maryakáḥ_ 'little man'. Martinet then assigns the same origin to the _-k-_ in Lat. _senex_ < _*senăks_ < _*sen-eH_$_{2}$_-s_ (: _*sen-eH_$_{2}$_-tu-_ in _senātus_), _fēlīx_ < _*-iH_$_{2}$_-s_ (: _*-y-eH_$_{2}$ in feminines to thematic adjectives in _-yo-_), etc. The same assumption also provides an explanation for the _-k-_ of OPruss. _suckans_ (acc. plur.) 'fish' versus the Greek -ῡ- in ῑ̓χθῦς, while a similar treatment of /A^{w}/ before _-s_ is supposed to account for _-k-_ in OE _cwicu_ 'alive' versus Goth. _qiwa-_ and the Latin perfect _uīxī_ (from the aorist-stem _*g_^{w}_iA_^{w}_-s-_). Martinet has thus established a pattern of alternation between _-k-_ and _-w-_, of which he makes further use to describe Gk. κόραξ versus Lat. _coruus_ 'raven' as the result of morphophonemic alternation and analogical extension of definite variants within the paradigm. Another corollary of his assumption is a suggestive explanation of the frequent interchange between the Old Indic 5th and 9th present classes: from the "base" _*reiA^{w}-_, which yielded Lat. _rīuus_ and its OCS equivalent _rěka_, an athematic present _*ri-ne-A^{w}-ti_[150] > Skt. _riṇā́ti_ 'cause to flow', with further thematization to _*ri-n-A^{w}-e-ti_ > Skt. _ríṇvati_, parallel to _jínvati_ 'enlives' < _*g^{w}i-n-A^{w}-e-ti_; the athematic form from the "base" _*g^{w}eiA^{w}-_ is however _jinóti_ – analogically, on the pattern of _sunvánti_ : _sunóti_, as its 3rd person plural was _jinvánti_ < _*g^{w}i-n-A^{w}-ónti_.

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[142] Minshall, 1955, 1956; on the Armenian treatment, cf. however Winter, 1960a, 28, 39–40; on the Albanian evidence, cf. also Hamp, 1960d, 54–79.

[143] Vaillant, 1950, 238–246.

[144] Kuryłowicz, *L'accentuation des langues indo-européennes* (Cracow, 1952), pp. 193–200; 429–434; cf. 2nd ed. (1958), pp. 161–169, 362–366.

[145] Cf., e.g., Christian S. Stang, *Slavonic Accentuation* (Oslo, 1957); Linda Sadnik, *Slavische Akzentuation. I. Vorhistorische Zeit* (Wiesbaden, 1959). In the latter, which Kuryłowicz reviewed rather sharply in *Kratylos*, vol. 5 (1960), pp. 195–201, Vaillant's theory receives very favorable consideration since "die akuierte Intonation im Verein mit der Längung dem Untergang eines Lautes zu verdanken ist" (p. 20), but as Miss Sadnik's knowledge of the "laryngeal theory" does not go beyond Kronasser's cavalier dismissal of the same, she rather beats about the bush in her reinterpretation of the IE background of the Balto-Slavic lengthening. E. Nonnenmacher-Pribić (*Die baltoslavischen Akzent- und Intonationsverhältnisse und ihr quantitativer Reflex im Slovakischen*, Wiesbaden, 1961) deliberately rejects Vaillant's view (p. 16) and backs up Kuryłowicz (cf. Kuryłowicz's favorable review in *Kratylos*, vol. 7 (1962), pp. 81–86); strangely enough she does not refer to Vaillant's *Grammaire comparée* (1950) in the discussion and ascribes Kuryłowicz's famous 1927 article on IE **ə* and Hittite *ḫ* to Vaillant (p. 172)!

[146] V. T. Bernards, 1958, 106–123, however endeavors to bear out Vaillant's evidence in favor of his theory. In recent years the problem has been taken up again by Russian linguists, e.g., V. M. Illič-Svityč (1959, 1–18), who posits a system of five laryngeals, the usual *ə̥$_1$, *ə̥$_2$, *ə̥$_3$, producing lengthening and acute intonation in Balto-Slavic, and two variants of the same, the non-coloring *ə̥$'_1$ and the *o*-coloring *ə̥$'_3$, which are assumed to be "non-acuting/non-lengthening". This leads him to arbitrary reconstructions like **brə̥$'_3$eə|tei* (through metathesis of the full grade vowel in **berə̥$'_3$ə|tei*) to account for Slavic **bьràti*, without verifying whether the evidence from other IE languages bears out such assumptions.

[147] Martinet, 1953. – In recent years J. Kuryłowicz seems indeed to have drifted far away from the "laryngeal" explanations he offered in his earlier writing (cf. C. Watkins's review of his *Apophonie* (1956) in *Language*, vol. 34 (1958), pp. 389–390).

[147a] In a paper read before the Linguistic Society of America in 1949, W. P. Lehmann had already suggested that "in early pre-IE some of the bases from which Skt. _nu_-verbs are made ended in a labio-velar laryngeal. When this lost its phonemic status, some of its allophones contracted with neighboring vowels; others fell together with the _w_ phoneme. Upon this coalescence the reflexes of the laryngeals patterned only in part like the allophones of _w_. Gradually, however, similar allophones to those of _w_ developed for all positions, and only a few aberrant forms remain from which we may deduce the original structure."

[148] Martinet, 1955b; cf. also 1956a, 1–3.

[149] The evidence for the distinctive features of laryngeals is very suitably compiled in Lehmann, 1952, 103–108.

These stimulating views of Martinet aroused considerable interest and soon found very active support among American "laryngealists".[151] William R. Schmalstieg suggested an explanation of Lithuanian _dúoti_ 'give' : OCS _davati_ on the basis of the alternation /o·/ before consonant : /a·w/ before vowel as reflexes of PIE /eA^{w}/.[152] Comparing Hitt. _aruna-_ 'sea' with Ved. _īrṇá-_ 'stirred' (to _r̥ṇóti, r̥ṇváti_ 'stirs'), J. Puhvel assumes it reflects _*A^{w}r̥A^{w}no-_ and suggests Hittite _-alu-_ in _kaluti-_ 'line, row' and _dalugi-_ 'long' reflects [l̥A^{w}].[153] Remarkably enough, however, in his 1955 article on the development of the PIE resonants in Germanic W. Lehmann described the alternation _ō_ : _au_ in Gothic _stōjan_ : _stauida_ 'judge' as reflecting the pre-Germanic sequence /aHw/ realized as _-aH-_ > _-ā-_ before a consonant and as _-aw-_ before a vowel, without even considering the possibility of ascribing it to Martinet's /A^{w}/, which would fit in very neatly with the assumed Balto-Slavic cognates Lith. _stõvis_ 'situation', OCS _stavъ_ 'compages'.[154] It may therefore be presumed that Lehmann did not consider Martinet's theory so firmly established as other linguists would have it – anxious as they were to carry it through to its utmost consequences. As early as 1956 F. R. Adrados indeed used it to account for the origin of the Old Indic 5th present class, assuming Skt. _sunómi_ 'press' : Hitt. _sunaḫḫi_ 'fill' reflect _*suneH-_ with "dissyllabic treatment" of *_-ne-H-_ and "vocalization" of *_H̥_ > _-u-_[155] in the _-neumi-_type of present, the _-nāmi-_type showing, on the contrary, the "monosyllabic treatment" of *_-neH-_ – a preview of the astoundingly arbitrary theory of PIE syllabification he was going to use as the basis of a very controversial investigation into the dialectal reflexes of laryngeals.[156] Gösta Liebert's pan-laryngealistic reshaping of PIE phonology may look more well-organized at first glance, but one is soon appalled at the author's reckless juggling with metathesis and at his lighthearted derivation of IE labial and palatal voiced stops from clusters of /y/ or /w/ plus laryngeal.[157]

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[150] Martinet, 1956a, 3. – Martinet sticks very strictly to the Saussurian pattern (cf. Saussure, 1879, 257 [_Rec._ 240]).

[151] E. Hamp (1955) even tried to reconcile Martinet's /A^{w}/ with Sturtevant's /γ/ and suggested Lat. _sēuī_ and OE _sāwan_ as regular reflexes of /seγ^{w}/ parallel to Hitt. _šeḫur_ – unfortunately without being able to account for the absence of coloration in this case, as contrasted with the _ā/ō-_ forms quoted by Martinet.

[152] Schmalstieg, 1956, 257. He also accounted for the Baltic denominative suffixes _-uo-_ : _-au-_ by positing (ibidem, 258) _*-eA^{w}+C-_ > _-ōC-_ : _*-$_{e}$A^{w}+V-_ > _-avV-_; a reflex of _*-$_{e}$A^{w}+V-_ is also to be found in the Lith. preterit _dãvė_ 'gave' (ibidem, 258, fn. 11).

[153] Puhvel, 1957, 235–236; cf. also 1960c, 35.

[154] Lehmann, 1955, 362–363.

[155] Adrados, 1956, 30. Another example of _*H̥_ > _-u-_ is Hittite _da-lu-ga-e-eš_ (ibidem, 27)! His 1958 article on the "vocalization" of the PIE resonants ("La vocalización de las sonantes indoeuropeas", in _Emerita_, vol. 26 [1958], pp. 249–309) contrasts very favorably with the rather sloppy treatment of the problem of _*H̥_ and contains an interesting discussion of the various theories on the syllabicity of resonants and the development of anaptyctic vowels, whose timbre he ascribed to the phonetic environment in his further study: "El desarrollo de las vocales de apoyo interconsonanticas en las lenguas indoeuropeas", in _Emerita_, vol. 27 (1959), pp. 155–162. In neither study does he deal with the problem of the laryngeals, which he tackles in a third article (Adrados, 1959), where he ascribes prothesis to the development of an anaptyctic vowel before a resonant, an obstruent or a laryngeal. However, the assumed anaptyxis will occur in a rather whimsical way either in initial position before /Hw/, or between /H/ and /w/, or even after /Hw/, so that his reconstructions appear again as very arbitrary!

To be sure, Puhvel may be right in remarking that Sturtevant and his followers "cheerfully donned a self-fabricated straitjacket, which did not allow the least freedom of movement apart from complete abandonment"[158] but to what pandemoniac picture of PIE phonology does slipping out of the Procrustean bed lead? With protean facilities of metamorphosis into velar or dental stops alternating with the labial semivowel, a laryngeal "suffix" may be hailed as the wonder-working cure for our headaches over discrepant perfect-formations in Latin, Greek, Germanic, and even Umbrian, but one really wonders whether anything is gained at all by substituting a phonemic PIE _deus ex machina_ for undoubtedly complex, but nevertheless rather neatly organized sub-classes in IE dialectal morphology![159]

No wonder, therefore, that the confirmed opponents of the laryngeal theory availed themselves of the opportunity to attempt to discredit it once more. Treating Brugmann's reconstruction of IE phonology almost as god-given revelation, H. Kronasser makes no bones about lightheartedly sweeping away any result several decades of patient research may have achieved in connection with Saussure's ablaut theory and the reflexes of his "coefficients sonantiques" in Hittite.[160] Disregarding the valid critique of the absurdity of the makeshift "explanations" of *ḫ* as a hiatus-breaker in *meḫur*, as a device to avoid initial *a-* and *w-* in *ḫark-* or *ḫweš-*, or as due to analogical transfer within paradigms or to reshaping in compliance with current clusters in loanwords from non-Indo-European languages and what have you, Kronasser flies in the face of the facts by ignoring the phonemic status of /h/ in Hittite and scamping the analysis of the morphemes containing it.[161] Though undoubtedly an excellent philologist, he seems utterly reluctant to apply the basic principles of structural linguistics to the description of Hittite. Therefore, failing to organize its phonemics and morphophonemics properly, he is doomed to resort to such irresponsible statements as:

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[156] Adrados, 1961, where the 1956 patterns are somewhat improved, e.g., *_-neA_^{w}_-mi_ > *_-nāmi_ : *_-nămen_ < *$n_{e}A^{w}$_-men_; *_-ne-A_^{w}_-mi_ > *_-neumi_ : *_-nŭmen_ < *_-n_A^{w}_{e}_-men_ (1961, 258), but the motivation of the syllabicity of /A^{w}/ and of the occurrence of the anaptyxis after the laryngeal in the second set of forms remains an open question. Besides, _ad hoc_ constructions based on the assumption of apparently unmotivated laryngeal gemination and metathesis often make the views of the author even more unbelievable (cf. G. Cardona's review in _Language_, vol. 39 [1963], pp. 91–100).

[157] Liebert, 1957a, 3–54; remarkably enough he rejects Martinet's derivation of _k_ from *$A^{w}s$ (ibidem, 50, fn. 4) and supports the Austin-Lehmann theory on the development of Gmc. /k/ from /Hw/, but postulates a metathesis of /Hw/ to /wH/ as intermediate stage (ibidem, 51), e.g., OS _naco_ 'boat' < PGmc. *_naw_H_{2}- versus *_na_H_{2}_w-_ > OIcel. _nór_, Lat. _nāuis_, Skt. _náuḥ_. At an earlier stage of diachronic development the same metathesis is, however, claimed to have produced IE *_nebh-_ (Gk. νέφος 'cloud') < *(_H_)_new_H_{2}- : *(_H_)_ne_H_{2}_w-_ > IE *(_s_)_nāw-_ (with _s-_ mobile) in Skt. _snáuti_ 'drips', Gk. νάω 'flow', etc. (ibidem, 28–29)!

[158] Puhvel, 1960a, 5.

[159] Cf. Rosén, 1957, 1958, with the subsequent rather painful quibbling with W. Cowgill, often reminiscent of the pungent Renaissance style of the celebrated disputes of Donellus and Cujacius! (cf. Cowgill, 1960a, 150–162; Rosén, 1961; Cowgill, 1961).

[160] Kronasser, 1956, 75–96, 244–247. His whole survey is essentially a compilation of the arguments G. Bonfante has untiringly repeated in various reviews since 1936, with a suggestion about _ḫ-_ before /u/ taken over from Petersen. Zgusta (1951, 457–460) has clearly shown the latter to be untenable; besides, Couvreur (1937, 236–244; 1943, 110) and Messing (1947, 165–167) had already done so as conclusively before. As for Bonfante's views, some regard for Crossland's unbiased discussion of the question (1951, 99–104) might at least be expected, but Kronasser seems to have developed a strange

> "Daß es (i.e. *ḫ-* in Anatolian) nicht bloße Zusätze der Schrift sein können (zumindest nicht immer) ist an sich unwahrscheinlich und wird durch Fälle wie luw. *ḫawi-* 'Schaf' neben dem (nicht keilschriftlich überkommenen!) bh. *hawa-* ds. eindeutig klar (zu lat. *ovis* usw.)!"[162]

It will certainly take more than such arguments to "bury" the "laryngeal theory" . . . .

Anyhow, such calls for a show-down prove most fruitful as appears from Martinet's restatement of the basic data of the theory with reference to componential analysis shortly after Kronasser trenchant rejection of the same.[163] After confirming the acceptability of the Saussurian approach to the reconstruction of IE vocalism by pointing out actually existing parallel systems like that of Caucasian Abaza described

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method to deal with the "laryngeal theory" : first, he creates the myth that it actually owes its existence to hazy ideas about Indo-European-Semitic "Urverwandtschaft" (even referring – 1961, 106, fn. 51 – to a non-existent page 483 in Polomé's survey in 1952 to "prove" that the latter "sich mit anerkennenswerter Klarheit zur idg.-sem. Verwandtschaft bekennt"!); then, he goes on listing all the linguists who ever displayed any scepticism towards the "laryngeal theory", even quoting those who do not say anything about it – since they plainly reject it "durch Nichtberücksichtigung"! After that, he digs up any occurrence of non-functional *h-* he can find, whatever its origin or its motivation in the relevant language, without even giving a thought to such possibilities as "hypercorrect" forms, due to conflicting usage at different socio-linguistic levels in class-dialects. Then, ignoring the fact that this material is mostly irrelevant for the purpose of comparison with the Hittite situation since /h/ is undisputably phonemic in this language, he sets up arbitrary rules, claiming that *-y-* and *-w-* develop between *e* + *a*, *i* + *a*, *u* + *i*, whereas *-ḫ(ḫ)-* occurs between *a* + *u*, *e* + *u*, *a* + *a*. The fact that *-ḫḫ-* never occurs after *-e-* does not bother him a bit, nor does he ever wonder why *ḫ-* should develop before *a-* in *ḫark-* 'be destroyed', but not in *ark-* 'cut up', or before *w-* in *ḫwek-* 'bewitch', but not *wek-* 'wish', and at least a score of such cases. Even his "rules" do not hold when one looks a little bit closer at the Hittite evidence, for, why should *-ḫ-* develop in *meḫur* 'time', but not in *meuš* 'four' (he himself actually reads *ḫe(-e)-u-uš* [acc. plur.] 'rains' *heyus* [1956, 115]!)? As regards cases like /sanh-/ 'strive' in *ša-an-aḫ-mi* (1st sg.), *ša-an-aḫ-zi* (3rd sg.), he is completely at a loss, for no convenient Hurrian cluster */nh/ is available there to "account" for the Hittite form in the slipshod fashion in which /sh/ in *išḫiya-*'bind' is explained, with regard to non-IE loans with /sh/, as "diesem häufigen Anlaut angeglichen" (1956, 81)!

[161] His explanation of the 1st person singular ending *-(ḫ)ḫi* (Kronasser, 1956, 188–189) is a striking example of his fumbling with /h/ (cf. B. Rosenkranz's pungent remarks in *Zeitschrift für vergleichende Sprachforschung*, vol. 75 [1958], pp. 215–218).

[162] Kronasser, 1962, 95–96.

[163] Martinet, 1957a, 1957b.

by W. S. Allen, he endeavors to set up the inferrable distinctive features of the "laryngeals". He insists on their continuant articulation, reflected by lengthening of homosyllabic vowels upon their loss, their oral coarticulation features determining the coloration of the contiguous vowel or the development of a glide, and their voiced or voiceless articulation, laying too much stress, however, on the isolated case of Skt. *píbati* 'drinks' by using practically no other evidence to establish a contrast between voiced and voiceless laryngeals.[164] Laryngeals are preserved as "independent segments" in Hittite, where the presence of *ḫ* and its simple or double writing, when consistent, may be used as relevant evidence, and they appear as /k/ in definite environments, e.g., before /s/, or in the case of initial /A^w/, in external sandhi after a final /H/, e.g., Lat. *costa* OCS *kostь* : Hitt. *ḫaštai-* 'bone'. On the basis of this evidence, it is no longer compulsory to work with a definite number of theoretically pre-established phonemes; therefore, dismissing the algebraist approach, Martinet leaves open the number of laryngeals to be posited for PIE.

As a corollary to his views, W. Diver,[165] while pointing to the recurring length of the vowel preceding the *-ye/o*-suffix of denominatives, assumes it contains a laryngeal. From the parallelism of Gk. φιλέω : φιλήσω 'love' with δέω : δήσω 'bind' rather than with τίνω : τείσω 'pay', he concludes that the *-y-* appearing in the denominative suffix is a glide "exuded" from the laryngeal, of which palatal tongue position must have been one of the relevant features. He accordingly posits /H^y/ for the noncoloring laryngeal (= Benveniste's *ə$_1$), which is apparently confirmed by Skt. *gā́yati* 'sings' < *_géH^y-e-ti_ and *syáti* < *_sH^y-é-ti_ : *_séH^y-_ > Lith. *siẽti* 'bind', as well as by the Slavic verbs of the type *zějǫ* : *zijati* 'yawn', which W. Schmalstieg[166] reinterprets in the same way, e.g., OCS *zějǫ* < *_ǵheH^y-_ : *_ǵhH^y-_ > Lith. *žióti*. Combining these views with Risch's analysis of the Hittite *teḫḫi* : *dāi*-type of verbs, J. Puhvel then sets up his conjectural system of eight laryngeals characterized by correlations of voice, patalalization and labiovelarization,[167] which is hardly in keeping with the phonological typology of PIE, where there is no other trace of a contrast between palatal and palatalized series, as W. Cowgill pertinently pointed out.[168] Besides, how reliable are Martinet's basic assumptions as regards /A^w/? Though Calvert Watkins supplied new evidence for it by interpreting the Old Irish suffixless preterit-form *sraí* 'hurled' as a direct reflex of the IE 3rd sg. perfect **strāwe* < **stroA*^{we},[169] some very strong points have been made against /A^w/ in recent years, aside from the fact that evidence for non-apophonic *ó* remains scanty and disputable:[170] Oswald Szemerényi has shown conclusively[171] that the *ā* of Lat. *octāuus* 'eight', *prāuus* 'wry', *gnāuus* 'industrious', etc., is due to a phonetic development of **-ōw-* to *-āw-*, and that the apparent change of **-ōw-*, which occurred about the end of the 3rd century B.C. in Lat. *caueō* 'beware' and *lauō* 'wash' is actually due to analogical levelling within the verbal paradigm. As for the labiovelar glide, R. Crossland[172] has suggested an attractive explanation of Skt. *jajñau*, by assuming that in the 1st sg. perfect-form **ǵeǵnoH-He* "stem-final **-H-* might very well have been realized in length of the preceding vowel before general 'loss' of the laryngeals occurred in any dialect, and /-w-/ then have developed between the resultant /-o:-/ and /-e/ when the

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[164] Cf. Martinet's statement at the London Congress of Linguists in 1952: "en ce qui concerne les laryngales, il est certainement d'une bonne méthode d'essayer de faire coïncider le nombre de celles qu'on postule avec les besoins réels de la comparaison et de s'efforcer de réduire ce nombre. Mais ce qui est hautement recommandable dans le cadre d'une activité strictement comparative, ne l'est plus du tout lorsqu'on vise à une reconstruction, c'est-à-dire à la restitution aussi fidèle que possible d'une réalité passée. Tant que l'on emploie des signes comme ə$_1$, ə$_2$, ə$_3$, qui résument des correspondances, on doit viser à l'économie. Dès que l'on utilise des symboles phonétiques comme ', γ, etc., se pose la question de la vraisemblance phonétique et phonologique." (Martinet, 1952, 468–469). – Noteworthy is also the corollary of his componential analysis of "laryngeals" for the phonetic interpretation of the zero grade, where he resorts to anaptyxis to explain the so-called "vocalized" forms of /H/, considering it as predictable under conditions similar to the French "rule of three consonants"; Lat. *grānum*: Goth. *kaurn* accordingly reflect [grəxnom] versus [gər(x)nom] (Martinet, 1957b, 28).

[165] Diver, 1959.

[166] Schmalstieg, 1960b.

[167] Puhvel, 1960b, 171; 1960c, 56. It can be sketched as follows with regard to articulatory peculiarities:

	Non-coloring "laryngeals"		*a*/*o*-coloring "laryngeals"	
	Palatalized	Non-palatalized	Non-labiovelarized	Labiovelarized
Voiced	$E_2{}^y$	E_2	A_1	$A_1{}^w$
Voiceless	$E_1{}^y$	E_1	A_2	$A_2{}^w$

[168] Cowgill, 1960a, 172. Besides, one might even wonder, whether the PIE system had any palatal consonantal phonemes besides the resonant /y/ (cf. Lehmann, 1952, 100–102).

[169] Watkins, 1958, 92–93.

[170] The problem has often been discussed with regard to the laryngeal theory, e.g., by Kuryłowicz (1937a), Sturtevant (1938c), Messing (1947, 215–220), etc. Kuryłowicz (in *Word*, vol. 6 [1950], pp. 205–216; cf. also 1956, 392) would now like to consider **ó* as the catalyzer, which made the development of the *e*/*o*-ablaut possible. For Martinet (1953, 253), this implies that an **o* found outside the categories where it should normally occur according to established patterns of vowel-alternation, cannot be readily explained as an analogical extension. However, as Crossland (1958, 89) stresses, "the possibility of such an extension can rarely be excluded in a particular case", e.g., frequency of **ó* in initial position is not necessarily significant, since Gk. λόγος and the like point to the possibility of IE words of the form /HoCo̥-/. Cf. also Watkins's critique in his review of Kuryłowicz's *Apophonie* (1956) in *Language*, vol. 34 (1958), p. 383.

[171] Szemerényi, in *Zeitschrift für vergleichende Sprachforschung*, vol. 70 (1951), pp. 51–76; cf. also on the ordinal "eighth", Szemerényi, *Studies in the Indo-European System of Numerals* (1960), pp. 173–174. Neither Martinet (1953, 1955a), nor Watkins (1960b, 187–188) refer to Szemerényi's views, whereas Cowgill (1960a, 116, 117) rejects his thesis that the *ă* of *lăuō* is ascribable to analogy to the *ā* of the perfect *lāuī*. Anyhow, Crossland (1958, 91) is right in stressing that the late occurrence of **ăw* for **ŏw* makes it probable that the *-ā-* of *octāuus*, *prāuus*, *gnāuus*, etc. is as well due to a recent development. However, Mycenean *re-wo-to-ro-ko-wo* (*λεϝοτροχοϝοι) 'bath-pourers' : Homeric λοετροχόος is *not* a decisive proof against the "laryngeal Umlaut" in roots with /l m n r/ plus laryngeal, since the metathesis of /H/, evidenced by Hitt. *la(ḫ)ḫuwai-* and Arm. *loganam* (cf. Winter, 1960a, 37, fn. 9), only occurs in the sequence /wH/, as shown by Hitt. *paḫḫur* 'fire' versus Toch. B *pūwar* (Cowgill, 1960a, 116; Winter, 1960b, 174) and maybe also in OE *brǣw* 'eyebrow' < PIE /breHw/ (Lehmann, 1952, 48) versus Toch. *pärwā-* < **bhrwH-* (Winter, 1960b, 174). Early loss of the laryngeal in IE **le*$ə_2$*w-*, as suggested by Benveniste (1962, 15) is extremely improbable!

[172] Crossland, 1958, 90.

laryngeal of the inflexion "disappeared" in Indic (*_ǵeǵnōHe_ > *_ǵeǵnōwe_ > *_jajñāva_)". As Eric Hamp has shown,[173] Martinet's reconstruction of Lat. _flāuī_ as *_bhleA_^{w} + _ai_ has indeed to be rewritten *_bhleA_^{w}_-Aei_ – *_bhleγ_^{w}_-xey_ in Sturtevant's terms,[174] but as N. E. Collinge accurately pointed out,[175] this is precisely a case where a _-k-_ would be expected instead of _-u-_ in Lat. _strāuī_ in view of Gk. ἔστρωκα (< *_e-streA_^{w}_-Ae_!) if Lat. _fēcī_ corresponds to Gk. ἔθηκα < *_e-dheE-Ae_. How can one indeed postulate that the initial laryngeal develops into /k/ in /Hest-/ (cf. Hitt. _ḫaštai-_) after final _-H_ in external sandhi, hence Lat. _costa_ : _os_,[176] without admitting the same development in internal position? As for the Germanic evidence for /k/ from PIE /A^{w}s/, if this change actually occurred in pre-dialectal IE, as the adduced Latin, Greek, Sanskrit and Balto-Slavic evidence undoubtedly implies it, one wonders why this pre-Gmc. /k/ did not undergo the Germanic consonant shift.[177]

If then a Gmc. /k/ of "laryngeal" origin can hardly be a reflex of PIE *_A_^{w}_s_, it remains to be seen whether it can be due to a recent development in Germanic, as William M. Austin recently maintained again.[178] Unfortunately, most of the adduced evidence is very questionable: German _locker_ – a word which does not occur before the XVth century – is projected into Proto-Indo-European, together with late medieval Upper German _lucke_, and connected with Gk. λύω 'unbind' and Hitt. _lā-_ under the assumption of a root *_lehw-_, which Sturtevant very hesitantly suggested on the basis of a purely arbitrary analysis of the 1st sg. preterit _la-a-ú-un_ as {lāu-} + {-un} instead of the obvious {la-} + {-un}, as is evident from the paradigm of this verb. English _thick_ is connected with Latin _tumidus_ 'swollen' to PIE *_teHw-_, but no mention is made of O.Ir. _tiug_, Welsh _tew_ 'thick' which clearly point to *_tegu-_; similarly O.Ir. _figim_ 'weave' is omitted as a possible cognate of OE _wēoce_ if its stem-vowel actually reflects a reduplication form *_we-uC-_; NE _slack_ is derived from PIE *(_s_)_leHy-_(_w-_), together with NE _slow_ and Latin _laeuus_ 'left', but while assuming _s_-mobile, Austin does not bother to mention MLG _lak_ 'slack, loose' which evidently has /k/ < pre-Gmc. /g/ as shown by Gk. λαγαρός 'slack, loose', OIr. _lacc_ 'slack, weak', etc., because he connects the undoubtedly cognate OIcel. _lakr_ 'defective' with Hitt. _laḫḫa-_ 'campaign, war', by assuming a rather unlikely semantic development of an "Indo-Hittite" root *_lex-w-_; worse even is Austin's derivation of OS _dunkar_, OHG _tunchal_ 'dark' from PIE *_dheHw-_ (e.g., in Skt. _dhắvati_ 'runs'), without referring to Hitt. _dankui-_ 'dark' which gives clear evidence of an original labiovelar, also reflected in Germanic by the unmentioned cognates OFris. _djunk_, OIcel. _døkkr_

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[173] Hamp, 1955a, 402–403.

[174] The Latin perfect ending _-ai_ reflects PIE /Ae/ (> Gk. _-a_; cf. Luwian [preterite] _-ḫa_) + the "deictic" particle _-i_ (cf. Watkins, 1962b, 88, 102; see also Kuryłowicz, in _Proceedings of the 8th International Congress of Linguists_ [Oslo, 1958], p. 236).

[175] Collinge, 1959, 231–232.

[176] Martinet, 1957a, 51; 1957b, 22; cf., however, the critical remarks of Otrębski, 1957, 55–56, and Collinge, 1957, 58; 1959, 239; see also Ambrosini, 1959, 296, fn. 3.

[177] For other discrepancies in the assumed Germanic evidence, cf. Polomé, 1959, 392–394.

[178] Austin, 1958.

'dark'! It will evidently take more than such etymological material "to establish the correspondence of Gmc. *-k(k)-* to IE *-Hy-*, *-Hw-* as a regular feature of historical Germanic phonology". However, this does not at all exclude the possibility of the occurrence of velar obstruents as reflexes of laryngeals under different conditions, and it will certainly be granted that the case of Armenian *mukn* (: Gk. μῦς 'mouse') and *jukn* (: Gk. ἰχθῦς) 'fish', beside OPr. *suckans* : Lith. *žuvìs*,[179] is rather impressive.

Such was the development of the laryngeal theory up to the 1959 Texas Conference.[180] Since then various new articles have been published on the subject, dealing with various details connected with the dialectal reflexes of the PIE phonemes, but practically always along the line of the various approaches already discussed here. A few younger Italian linguists like R. Ambrosini[181] and P. G. Scardigli[182] have given an unprejudiced factual account of the results achieved by continuous research in the field, but the relentless opposition of G. Bonfante is still strongly felt in other writings.[183] For several years Russian linguists have reported the progress of laryngeal studies and interesting articles on the subject have been published, mainly in *Voprosy Jazykoznanija*, by N. D. Andreev, V. V. Ivanov, A. S. Mel'ničuk, and others, but the main Russian contribution to this field of research is the recent work of T. V. Gamkrelidze, who carefully reviewed the various interpretations of Hittite *ḫ* and came to rather conservative conclusions on the PIE "laryngeals", positing three of them which merged into one phoneme /H/ after coloring the contiguous vowel;[184] he assumes this /H/ to have been vocalized into /ə/ and gives detailed attention to the conditions under which it was lost. Taking up again a view of Pedersen,[185] according to which the Hittite double spelling of -(_k_)_k_- in _me-ik-ki-iš_ 'great' or -(_p_)_p_- in _šu-up-pí-iš_ '(ritually) clean' actually reflects a cluster of a plosive plus a laryngeal, Gamkrelidze assumes, on the basis of the similar treatment of these clusters in Indo-Iranian and of the absence of assibilation in -(_t_)_ti_- from original /tHi/, that they were still realized as aspirates in Hittite and that the double spelling is nothing but a historically explainable graphic device to represent these sounds.[186] Though it is quite admissible that the Hittite double writing reflects a former cluster, the question whether it still represents actually pronounced aspirates will have to be further investigated by specialists of cuneiform writing.[187]

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[179] Winter, 1957, 60; 1960a, 31.

[180] For a review of its results, cf. Cardona in *Language*, vol. 37 (1961), pp. 413–424.

[181] Ambrosini, 1959, 292–302, who confirms the phonemic status of /h/ in Hittite, but remains very reluctant to admit its existence elsewhere in IE, referring in this regard to J. Kuryłowicz's new approach to the PIE vocalism in his *Apophonie* (1956, esp. p. 202), and to T. Sköld's wavering in his conclusion of his study of three Finnish words assumed to have been borrowed from Proto-Indo-European when postvocalic laryngeals were still preserved before obstruent (1959, 42) – an attitude which is strikingly different from the confidence with which he operates with /ʔ̣$_2$/ and /ʔ̣$_3$/ in his appendix to his article on IE **ms* (1957).

[182] Scardigli, 1958, 73–116, who would posit *one* IE laryngeal, evidenced by Hittite /h/, but consider its effect on contiguous phonemes not yet sufficiently well-established to entitle us to draw far-reaching conclusions from it for the reconstruction of Proto-Indo-European.

[183] Cf. e.g. Fronzaroli, 1958, 125, 145, 171. – G. Devoto, who had already shown his interest in the "laryngeal theory" in discussing the linguistic position of Hittite (1950), gave a short, but accurate survey of its main assumptions (1962, 27–29). Though rejecting the so-called "monovocalic" theory, which he traces back to Hjelmslev (1937), as well as the corollary assumption of vowel timbre-coloring laryngeals, Devoto admits of the possibility of reconstructing a PIE consonantal "shwa" with L. L. Hammerich, and even accepts two of them on the basis of Hittite *-ḫ-* versus *-ḫḫ-*.

[184] Gamkrelidze, 1960. Some of his views are however rather controversial, e.g., pp. 48–49, when he considers the double spelling of /h/ in Hitt. *teḫḫi* as a reflex of the *two* laryngeals in PIE $*dheH_1$-H_2e; p. 84, when he posits an "expanded" stem /dheH$_1$i-/ to account for the 2nd person singular *da-it-ti* < PIE $*dheH_1i$-tH_2e, assuming *-ḫ-* after *-e-* is lost before /i/, with change of /e/ into *a* before *i*, in compliance with Pedersen's rule (1938, 113); p. 90, when he postulates that the "labialized pharyngeal" /A^w/ was "neutralized" into /H/ after the change of contiguous /e/ into *o*, but that this /H/ could transform this *o* further on into *a*, hence IE /doH/ : /daH/ in Gk. δίδωμι : Lat. *dās*, Lith. *dovanà*.

Apart from the appendix on morphological reflexes of laryngeals in Celtic nouns and verbs in Calvert Watkins's remarkable monograph on the sigmatic aorist[188] and from F. R. Adrados's very disputable elaboration of his former views on laryngeals, the only important work dealing directly with the "cross-Indo-European analysis" of the laryngeal theory is Jaan Puhvel's recent study of nasal infix presents, the desiderative, and long-vowel stem morphemes from this angle.[188a] His theory of the development of the nasal infix presents is based on a modification of Benveniste's pattern, to fit in such forms as Skt. _krīṇā́ti_ 'buys' (with "secondary" _ī_) < *_k^{w}ri-n-éH-_ to a "theme II" *_k^{w}réy-H-_ with laryngeal "enlargement" (cf. Gk. ἐπρίατο < *_-k^{w}riyH̥to_, with the treatment of /y/ predictable under the conditions of Edgerton's rules). Provided the laryngeal "enlargment" admits of an ablaut /eH/ : /H/, in contradiction to the basic principles of Benveniste's root theory,[189] the -_n_-infix would occur after the double zero grade of the "root" and "suffix" in Benveniste's "theme II"! This assumption enables Puhvel to include Skt. _mathnā́ti_ 'snatches away, robs' into the "regular" pattern as a reflex of *_mn̥t-n-eH-_ and to assume a similar development in _grathnā́ti_ 'strings together' and _śrathnā́ti_ 'slackens'. However, his main evidence to posit *_mn̥t-n-éHti_ as the prototype of _mathnā́ti_ is the Vedic noun _mánthāḥ_ 'stirring stick': (gen. sg.) _matháḥ_ < *_mént-eH_ : *_mn̥t-H-ós_, parallel to the paradigm of Ved. _pánthāḥ_, Av. _pantå_ 'path' : (gen. sg.) Ved. _patháḥ_, Gāth. Av. _paθō_.[190] Closer examination of the Vedic evidence, however, shows that _manth_- 'twirl' and _math_- 'snatch away, rob' are two completely separate stems,[191] which makes it probable that

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[185] Pedersen, 1938, 36; cf. also Winter, 1957, 251.

[186] Gamkrelidze, 1960, 60–75, with further elaboration in 1961 (cf. also _Archiv Orientální_, vol. 29 (1961), p. 418, with fn. 46).

[187] Cf. on different interpretations of double writing in Hittite, Kuryłowicz, in _Proceedings of the 8th International Congress of Linguists_ (Oslo, 1958), pp. 219–220, and Kronasser, 1962, 12–18.

[188] Watkins, 1962, 181–190.

[188a] Puhvel, 1960c.

[189] Benveniste, 1935, 163, explains Skt. _krīṇā́ti_ as a "denominative" from *_k^{w}rinā_ (cf. OLith. _krieno_ [gen.] 'pretium pro sponsis').

[190] Cf. Hamp, 1953a, 135–137, with reference to earlier literature.

[191] J. Narten, "Das vedische Verbum _math_-", in _Indo-Iranian Journal_, vol. 4 (1960), pp. 121–135; cf. also M. Mayrhofer, in _Concise Etymological Sanskrit Dictionary_, vol. 2 (Heidelberg, 1962), pp. 567, 578–580.

mathnā́ti owes its -_th_- to analogy to the PIE "theme I" /metH/[192] and actually reflects /mtnéHti/, with anaptyxis before the cluster /tn/ like in _dabhnóti_ 'deceives' before /b^{h}n/, as compared to Av. _dəbənaotā_ and Ved. _ádbhuta_- *'undeceivable' > 'supernatural'.[193] An alternation *_mn̥t_- : *_ment_- reflected by _mathnā́ti_ : _mánthāḥ_ can accordingly hardly have served as a model for repatterning _gr̥ṇátti_ as well as the original nasal-infix present implied by the thematized form _śr̥ntháti_ into _grathnā́ti_, _śrathnā́ti_.

To explain the parallel occurrence of _str̥ṇā́ti_ : _str̥ṇóti_, Puhvel turns to Martinet's suggestion that the *_u_ of _str̥ṇóti_ might be an analogical extension of the _w_ "exuded" from /A^w/, e.g. in Lat. _strāuī_ < *_streA^w_-, allegedly "before vowel" : Skt. _str̥ṇā́ti_ < *_str̥-n-eA^w_- before consonant. To back up this assumption, he refers to his etymology of Hitt. _aruna_- 'sea' and the two other words in which he assumed interconsonantal PIE /lA^w/ yielded Hittite /alu/, and extends this vocalization pattern to interconsonantal PIE /nA^w/ in the 1st person plural *_sn̥A^{w}més_ > *_s(n̥)numés_ in pre-dialectal IE. The least one can say about this view is that it arbitrarily extrapolates into a stage of development of common-IE a phonetic change for which there is no scrap of direct evidence after /n/ in any dialect and which actually rests on unreliable evidence elsewhere, since in _aruna_- /rA^w/ appears in initial position[194] and the PIE prototype *_dl̥A^{w}ghi_- of Hitt. _daluki_- can hardly account for Gk. δολιχός,[195] whereas the semantic relation between Hitt. _kaluti_-, Luw. _kalutti_- 'circle, group' and Gk. κλώθω 'spin' appears to be rather far-fetched. If, then, there is no historical phonological basis for the assumption of (1st plur.) *_s(n̥)nu-més_ < *_sn̥A^w-més_, parallel to *_t(n̥)n-u-més_ – reinterpreted as *_CR̥-n-u-més_ to serve as a model for the reshaping of *_ḱl̥lumés_ (versus (3rd sg.) *_ḱléwti_, allegedly guaranteed by Ved. _śróṣi_) into *_ḱl̥-n-u-més_ – the basis for the repatterning of the 3rd person singular as *_s(n̥)néwti_ (> Skt. _sanóti_), parallel to *_t(n̥)néwti_ (> Skt. _tanóti_), seems rather slender. As for the 3rd person plural forms *_tn̥-w-énti_ : *_sn̥A^w-énti_, before making the -_e_- of the ending responsible for any development of -_w_- from /A^w/, it remains to be examined whether it actually occurred in the original PIE athematic ending of the 3rd person plural with regard to such Greek forms as *ῥήγνῦσι P 751 (> ῥηγνῦσι, with a shift of the accent due to the influence of the contract verbs) with *-_nti_ like Doric δίδοντι, τίθεντι, ἵσταντι.[196] Accordingly, Puhvel's theory on the origin of the nasal infix presents remains very disputable.[197]

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[192] Cf. Lehmann, 1952, 80, 106.

[193] Puhvel's comparison with Hitt. _tepnu_- 'humiliate' is no longer valid since Ved. _dabhrá_- 'small' : Hitt. _tepu_- 'small', which are usually referred to to provide a semantic link, cannot be recognized as cognate with Skt. _dabhnóti_ (cf. Benveniste, 1962, 115–117).

[194] As for Skt. _īrṇá_-, cf. Cowgill, 1960a, 111–112; see also G. Cardona, in _Language_, vol. 37 (1961), pp. 418–419, for Sanskrit semantic equivalents from an "_aniṭ_-root", e.g., _arṇavá_- 'ocean'.

[195] Cf. Cardona, _loc. cit._, p. 419, about the utter improbability of Puhvel's tentative derivation of -_i_- from *_Ḁ^{w}_ in Gk. π(τ)όλις (Puhvel, 1960b, 73, note 28).

[196] Cf. also about -_nti_ in Baltic, W. Schmalstieg in _International Journal of Slavic Linguistics and Poetics_, vol. I/II (1959), pp. 181–183.

[197] Besides the points raised by Cardona, _loc. cit._, pp. 418–420, the divergent views of W. P. Schmid

His views on the long-vowel stem morphemes depend largely on the validity of Diver's assumption of $/E^y/$, whereas his tentative equation of the desiderative morpheme with the PIE root of the verb 'to be' offers a wide scope for glottogonic speculations. Thus, Puhvel's work appears as a challenging new approach to reinterpretation of old problems in the light of the "laryngeal theory". Though controversial in many a detail, it shows that Indo-European studies, far from being threatened with sclerosis, still provide wide open fields for research when one shakes off the shackles of strict Neo-Grammarian conventionalism, but avoids running wild in the newly opened-up territories.

The "laryngeal theory" can no longer be considered as *in statu nascendi*,[198] but it still must grow out of the ailments of adolescence. May this volume contribute to its coming of age . . .

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This bibliography attempts to mention all the major writings in the "laryngeal theory". Whereas the smallest bibliographical items relating to it have been listed separately for the earliest period, a different procedure has been applied to recent literature, where reviews are only mentioned in connection with the relevant works. In order to enable the reader to survey the personal contribution of each individual author, the presentation of the bibliography is alphabetical, by names of authors; their works are listed in chronological order with full bibliographical references. I am indebted to my colleagues Winfred P. Lehmann and Ronald A. Crossland for kindly putting at my disposal Russian publications hard to obtain; I am also most grateful to Mrs. K. Casey and Mr. Roy Jones for their invaluable help in compiling this bibliography. Some items had unfortunately to be quoted from second hand; they are marked with an asterisk.

Abbreviations

AJP: American Journal of Philology.
AION: Annali dell'Istituto Orientale di Napoli. Sezione Linguistica.
ASNSP: Annali della Scuola Normale Superiore di Pisa. Serie II. Lettere, Storia e Filosofia.
Arch. Ling.: Archivum Linguisticum.
AO: Archiv Orientální.
BSL: Bulletin de la Société de Linguistique de Paris.
CP: Classical Philology.
DLZ: Deutsche Literatur-Zeitung.
HSCP: Harvard Studies in Classical Philology.
IF: Indogermanische Forschungen.

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about the relationship between Skt. *kṛṇóti* and *károti*, in *Indogermanische Forschungen*, vol. 65 (1960), pp. 235–248, might be mentioned. In connection with Ved. *tarutė́*, it might be worth while to consider the aberrant Hittite forms (3rd sg.) *ta-ru-uḫ-zi, tar-ḫu-uz-zi*; (3rd plur.) *tar-ru-uḫ-ḫa-an-zi*; (pret. 3rd. plur.) *tar-ḫu-e-ir*; (imper. 3rd sg.) *tar-ḫu-du*.

[198] Cf. Kuiper, 1957, 89.

IIJ: *Indo-Iranian Journal.*
JAOS: *Journal of the American Oriental Society.*
KDVS: *Det Kongelige Danske Videnskabernes Selskab. Historisk-Filologiske Meddelelser.*
KZ: *Zeitschrift für vergleichende Sprachforschung.*
MKNAW: *Mededelingen der Koninklijke Nederlandse Akademie van Wetenschappen*, Afd. Letterkunde (Nieuwe Reeks).
NTS: *Norsk Tidsskrift for Sprogvidenskap.*
Proceedings 7th Congress: *Proceedings of the VIIth International Congress of Linguists* (London, 1–6 September 1952), edited by F. Norman and P. Ganz (London, 1956).
Proceedings 8th Congress: *Proceedings of the VIIIth International Congress of Linguists* (Oslo, 1957), edited by Eva Sivertsen (Oslo, 1958).
RBPhH: *Revue Belge de Philologie et d'Histoire.*
RHA: *Revue Hittite et Asianique.*
TPS: *Transactions of the Philological Society.*
VJa: *Voprosy jazykoznanija.*

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* Though not directly concerned with the "laryngeal hypothesis", the author endeavors to reconstruct a PIE velar fricative /x/ to account for Hittite /h/ in a series of cases where PIE "laryngeals" are usually posited.

** I owe this reference, as well as a xeroxed copy of this article, to W. R. Schmalstieg, whom I thank for putting it so kindly at my disposal.

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EVIDENCE IN ANATOLIAN

JAAN PUHVEL

The Anatolian group of Indo-European languages plays an exceptional, peculiar, and crucial part in deliberations about the theory of laryngeals. Its data became available at a time when the early systemic deductions of F. de Saussure, H. Pedersen, and A. Cuny, and H. Møller's "Indo-Semitic" castles in Spain, had had their day and were withering from neglect. From 1917 onward (the date of F. Hrozný's *Sprache der Hethiter*) the deciphered Hittite material was at hand; nevertheless, a glance at the bibliography of the following ten years[1] finds laryngeal theory more moribund than ever. In that time, however, another ominous matter, the origin of Hittite *ḫ*, was beginning to elicit motley solutions. Indo-European etymology was the principal tool; in Anatolian linguistics it is still a very precarious area of investigation, but in those days it was little better than amateurish guesswork.[2] A variety of Indo-European palatal and velar stops (*ǵh, gh, k* > *ḫ*, *g*^{w} > *ḫu*) were adduced as sources by Hrozný, C. Marstrander, J. Friedrich, A. Götze, and Pedersen, as was *s* > *ḫ* (Hrozný) and *bh* > *ḫ* (E. H. Sturtevant). Little of this early groping survived the year 1927, when one of Saussure's "coefficients sonantiques" was equated with Hittite *ḫ*.[3] Ever since that time Hittite has played a principal part in all theorizing about laryngeals, and the whole question of the origin of *ḫ* has undergone a radical shift. Opponents of the laryngealistic approach (e.g., Marstrander and W. Petersen in the early days, G. Bonfante and H. Kronasser more recently)[4] have been reduced to talking about possible secondary sources of *ḫ* (aspiration, hiatus glide, etc.). The "Danish School" (Pedersen, H. Hendriksen, L. Hammerich) with its Belgian ally J. Duchesne-Guillemin has shown a tendency to want the best of both worlds; it professes its own brand of laryngealism, while at the same time exploiting the etymological possibilities of **k* > *ḫ* (Pedersen, Hendriksen, Duchesne), *g*^{w}- > *ḫu*- (Hendriksen, Hammerich), and

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[1] See my *Laryngeals and the Indo-European verb* 2 (1960).

[2] A survey is found in W. Couvreur's *De hettitische Ḫ* 58–70 (1937); cf. also E. G. C. Polomé, *Language* 28.444 (1952).

[3] By J. Kuryłowicz, *Symbolae grammaticae in honorem Ioannis Rozwadowski* 95–104 (1927); cf. Cuny, *ibid.* 94.

[4] For references to laryngealistic works the reader is referred once and for all to the bibliography in *Laryngeals and the IE verb* 1–13, to be supplemented up to 1950 and completely overhauled for 1950 and later in my forthcoming *Laryngeals and Indo-European morphology*. See also E. Polomé's bibliography in this volume, which follows principles of arrangement different from those used in mine.

ḱ, *ǵ* > *ḫ* (Hammerich), with theories of palatalization (**ke* > **kja* > **ša* > *ḫa* in Pedersen's case) or aberrant treatment of palatals before back vowels (Hammerich). Their proof is purely cumulative etymology, and as such it has been rather effectively demolished.[5] Even a rabid anti-laryngealist like Kronasser, who casts about for alternative sources of *ḫ*, has shown skepticism in regard to many of those comparisons.[6]

From the early 1930s onward, the integration of Hittite *ḫ* with various degrees of Saussure-inspired ablaut theory has been a dominant theme in laryngealist literature. System-builders such as Kuryłowicz (1935), Couvreur (1937), Pedersen (1938), Cuny (passim), and Sturtevant (passim) have tried to strike a suitable balance between their theoretical postulates for Indo-European (or its stillborn rivals, "Nostratic" and "Indo-Hittite", in the cases of Cuny and Sturtevant) on the one hand, and on the other the illumination derived from (or read into) the phonic laryngeal substance in Anatolian languages. None of those "classic" systems, nor their eclectic refinements in the writings of Hendriksen (1941), Hammerich (1948), R. A. Crossland (1951), L. Zgusta (1951), W. P. Lehmann (1952), and others, nor the newer suggestions advanced by workers like A. Martinet (1953–6), N. D. Andreev (1957), and myself (1960), have achieved a completely satisfactory confrontation and pairing of assumed Indo-European and attested Anatolian laryngeals. In this situation I shall first undertake an open-minded survey of the evidence, wiping the slate clean of loose theorizing but by no means neglecting the gains of the past or the insights of the moment. I will not burden the presentation further with the history of the laryngeal theory, after years of tracking down and considering practically everything ever written on the subject, nor with an excessive apparatus of references.

The basic views of the past will be considered known, and references by author's name and year in parentheses are made as explained in footnote 4. The survey is in three parts: "The synchronic character of the Anatolian laryngeals", "The Anatolian laryngeals as evidence for Indo-European laryngeals", and "Non-laryngeal Anatolian evidence for Indo-European laryngeals".

THE SYNCHRONIC CHARACTER OF THE ANATOLIAN LARYNGEALS

At the time of this writing I have just received the first instalment of Kronasser's *Etymologie der hethitischen Sprache I. Zur Schreibung und Lautung des Hethitischen* (Wiesbaden, 1962). It must be said that the author, for all his obstinate opposition to laryngeal theory which numerous critical reviews have failed to mellow, shows here (94–100), as in his 1956 book (89–94), a healthy philological interest in the Anatolian laryngeals as such, without prejudice to their origin. Laryngealists who evidenced similar concern in the past include Couvreur (1937), G. M. Messing (1947), and Crossland (1951, pp. 92–6), while to most workers (notably of the Sturtevant group)

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[5] Notably in Polomé's article "On the source of Hittite *ḫ*", *Language* 28.444–56 (1952).

[6] *Vgl. Laut- und Formenlehre des Heth.* 83–4 (1956).

Hittite laryngeals have been like strange artificial laboratory cultures, subject to sterile transfer from tablet to test tube. After studying for years such possible sources of indirect evidence for the phonetic character of *ḫ* as spelling variants, antecedent and parallel phases of cuneiform orthography, Hurrian, Ugaritic, Hieroglyphic Luwian, and Egyptian transcriptions of reciprocal loanwords, Lycian, Lydian, and Greek alphabetic representations of Asianic inheritances, and much else, I find it gratifying to note essential points of agreement with Kronasser's inferences. Because some of our materials of necessity overlap I will avoid duplication and keep my data on an independent level.

For a proper understanding of the range of phonetic possibilities we must start with the sources of cuneiform tradition. Sumerian was poor in "guttural" phonemes, and cuneiform was accordingly unable to accommodate anything like the Proto-Semitic inventory of laryngeals and (post)velars-pharyngeals at the time of the Akkadian invasion of Mesopotamia. Akkadian would no doubt have gradually devised adequate means of graphic expression; yet the substratal linguistic impact of Sumerian solved the problem first by precipitating a radical simplification of the Akkadian setup. During the Old Akkadian period these developments were still unfinished which ultimately left only *ḫ* and ʾ and reduced *h*, *ḥ*, ʿ, and *ġ* to ʾ. The Old Akkadian syllabary was unable to cope adequately with the multiplicity of "gutturals" (like that of the sibilants and emphatics); yet traces of differentiation are discernible.[7] Original ʿ is word-initially occasionally represented by *ḫ* in Old Babylonian (e.g., *ḫurḫudam* beside *urʾudum* 'throat'); accordingly ʿ was not yet fused with ʾ, for the latter was never expressed by *ḫ* initially, although medially in Old Babylonian and Old Assyrian *ḫ*-signs also denoted ʾ (as in *ḫurḫudam* or *eḫiltum* = *eʾiltum* 'obligation', root ʾʾ*l*). Syllable-final ʾ was always written with the *aḫ*, *iḫ*, *uḫ* sign; sometimes the latter helped to represent a double ʾ, e.g., *ú-na-aḫ-ḫi-id*. Initially ʾ was indicated by repeating the vowel, e.g., *e-er-ru-ub*, and the same was an alternative device medially (e.g., OAss. *iš-a-am* for *išʾam*, or OBab. *ú-na-i-id* for *unaʾʾid*). Only in Middle Babylonian and Assyrian times was a specific variant of the *aḫ*, *iḫ*, *uḫ* sign set apart for *a*ʾ, *i*ʾ, *u*ʾ; it was later used for ʾ*a*, ʾ*i*, ʾ*u*, and double ʾ as well. At the same time the ʾ phoneme (the product of PSem. ʾ, *h*, *ḥ*, ʿ, *ġ*) was largely lost, leaving changes in the qualities of adjacent vowels.

On the whole the phonemic and approximate phonetic character of Akkadian *ḫ* is clear from the Proto-Semitic inventory: ʾ = glottal stop; *h* = [h]; *ḥ* : ʿ = voiceless : voiced laryngal spirant; *ḫ* : *ġ* = voiceless : voiced (post)velar or pharyngal spirant. Due to the breakdown of oppositions within the Akkadian inventory it may have undergone articulatory changes. While substratal influence was the presumable underlying dislocating factor, there must also be some plausible phonological explanation of the stages and dynamics of the Akkadian holocaust of "gutturals". A first stage of weakened articulation probably resulted partly in [h], and subsequently zero, with ['], already phonemically present in the language, moving in as anlaut feature or hiatus filler. One may compare the occasional appearance of ʾ for earlier *w*, *y*, *m*, *n* (Von Soden, *Grundriss* 26). It seems likely that in the breakdown the laryngal : (post)-velar-pharyngal opposition was neutralized by the initial disappearance of *ḥ* and *ġ*; at this stage certain cases of medial *ḥ* and *ġ* seem to have been fused with the new pair, rather than weakened to ʾ: e.g., *raḫāṣu* 'to flood' (cf. Arab. *raḥaḍa*) or *ṣaḫāru* 'to be small' (cf. Arab. *ṣaġara*). The remaining opposition of voiceless *ḫ* and voiced ʿ was for a while minimal in Old Akkadian, but was debilitated in Old Babylonian by the successive weakening of ʿ. This left *ḫ* persisting in the same isolated status as ʾ, but with less tendency to disappear, due to its stronger articulation.

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[7] Cf. W. von Soden, *Das akkadische Syllabar* 7–8 (Rome, 1948); *Grundriss der akkadischen Grammatik* 24 (Rome, 1952).

Whether the *ḫ*-symbols in Old Akkadian denoted (post)velars-pharyngals or laryngals is accordingly at this point a moot question. This ambiguity must be kept in mind when dealing with the extra-Mesopotamian involvements of cuneiform.

In Old Babylonian versions of Canaanite proper names initial ʿ is represented by *ḫ*, which accords with the exceptional persistence of ʿ in native words, as described above; so perhaps also in *Ḫammurabi*, where *Ḫ*- corresponds to general Semitic ʿ. But also later there is a certain range of approximation in the use of *ḫ*. The appearance of *ḫ* for the Canaanite reflexes of PSem. *ḥ*, ʿ, *ḫ*, *ġ* is common in the Amarna glosses, e.g., (*ḫ*)*aparu* for ʿ*pr*.[8] The *Chicago Assyrian Dictionary* (6.96) lists two instances of a Canaanite loanword **ḫarāšu* 'to plough' in Akkadian (Hebr. *ḥrš*, PSem. **ḥrþ*; see *JAOS* 74.87 [1954]). In the Assyrian cuneiform notation of Phoenician, *ḥ* (PSem. *ḫ* and *ḥ*) and *h* are denoted by *ḫ*.[9] These examples might be multiplied.

In Old Akkadian cuneiform there was no graphic expression of the voiceless : voiced opposition of Akkadian consonants; it developed gradually in later Mesopotamian writing. Recent researches have made it quite clear that the Hurrian and Hittite types of cuneiform are both independently derived from an Old Akkadian variety used in northern Mesopotamia.[10] In Hurrian there existed a minimal pair of phonemes which the Ugaritic script from Ras Shamra denotes by means of *ḫ* (never *ḥ*) and *ġ*. Hurrian syllabic cuneiform has its own mechanism of voiceless : voiced distinction, a double : single opposition in writing intervocalic consonants.[11] Thus Hurrian -*ḫḫ*- (= Ras Shamra *ḫ*) and -*ḫ*- (= Ras Shamra *ġ*) involve an important phonemic reinterpretation (not merely a forced approximation) of the Mesopotamian use of *ḫ*-signs. There is little doubt that the special variety of cuneiform with few ideograms which characterizes Hattic and Hurrian texts at Boghazköy is of Hurrian inspiration, especially since it agrees with the graphic conventions of the Tushratta Letter. Standard Hittite cuneiform shows some (especially profuse ideographic) assimilation to contemporary Mesopotamian usage, but it is basically of the same (ultimately Old Akkadian) provenance. The Hurrian tendency to distinguish intervocalically minimal consonant pairs is matched by Hittite in a slightly blurred state. As in Hurrian, there is an *-ḫḫ-* : *-ḫ-* opposition of considerable consistency, thus pointing to two phonemes. The Hittite opposition may phonetically be one of fortis : lenis instead of voiceless : voiced, but this would be equally relevant; Kronasser (1956, p. 57) has aptly compared the Finnish representation of Germanic loanwords (Goth. *wikō* : Finn. *viikko* 'week' with fortis, but Goth. *paida* : Finn. *paita* 'shirt' with lenis). Unfortunately the so-called Sturtevant's law and its Hurrian "Speiser's law" counterpart are misnomers for mere conventions, with the result that it has become fashionable to doubt their significance.[12] It must, however, be admitted that the graphic evidence hinges on the reliability of the fine Ras Shamra distinctions of various gutturals, which is not always unblurred. E.g., the name of Egypt, attested in Linear B *ai-ku-pi-ti-jo*, Egypt. *ḫt-kʾ-ptḥ*, appears in Ugaritic as *ḥkpt*, although Ugaritic had a clear phonemic and graphic distinction of PSem. *ḫ* and *ḥ*; the Akkadian form in the Amarna letters is properly *Ḫikuptaḫ*. Egyptian transcriptions of *Puduḫepa* and *Giluḫepa* (with Hurrian theophorous *-ḫepa*) are *ptḫp* and *krgp*,[13] showing a distinction which is hard to justify except perhaps by a tendency to intervocalic voicing of *ḫ* in a compound and the approximation of *ġ* by the Egyptian stop *g*. *Ḫattusilis* (with Hattic *Ḫ-*) comes out as Egypt. *ḫtšr*, and the ethnicon "Hittite" as Ugaritic *ḫty*, but Ugaritic also has a noun *ḥtṧ* 'silver' beside general Semitic *ksp*; it cannot be Hurrian (where 'silver' is *ušḫuni*) and probably represents a borrowing from the Hattic area (the Sumerogram used for *Ḫattusa-* reveals its meaning of 'Silver City'). The silver mines of the Taurus Mountains make the suggestion a likely one; however, a wider diffusion of such a metal name cannot be ruled out, and in any event the root reached Ugarit under two phonetic and semantic auspices, once as *ḫat-* 'Hittite' and once as *ḥat-* 'silver'.

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[8] Cf., e.g., Bauer-Leander, *Historische Grammatik der hebräischen Sprache* 14 (Halle, 1922).

[9] Cf. Friedrich, *Phönizisch-punische Grammatik* 11, 14 (Rome, 1951).

[10] Cf. T. V. Gamkrelidze, "Klinopisnaja sistema akkadsko-xettskoj gruppy i vopros o proisxoždenii xettskoj pis'mennosti", *Vestnik drevnej istorii* 1959.1, 9–19; also published as "The Akkado-Hittite syllabary and the problem of the origin of the Hittite script", *Archiv Orientální* 29.406–18 (1961). Cf. H. G. Güterbock, *OLZ* 51.515–6 (1956).

[11] See E. A. Speiser, "Phonetic method in Hurrian orthography", *Language* 16.319–40 (1940), esp. 334–6; *Introduction to Hurrian* 44–9 (New Haven, 1941).

In Akkadian itself there are a number of sporadic examples of an *ḫ* : *k* variation: OBabyl. *ḫissatum* for *kissatum* 'forced service', NAssyr. *ḫanāšu* 'subject oneself' for *kanāšu*, LBabyl. *tamāku* for *tamāḫu*.[14] The same variation is common in Elamite and Hurrian. In the latter we find profuse fluctuation in the word for 'chair' (*gešḫ/ki*, *kešḫ/ki*, *ḫešḫ/ki* at Boghazköy, *gšḫ-p* at Ras Shamra). In Ugaritic it appears with metathesis as a loanword *kḥṧ*,[15] and in Hittite as *kisḫi*(*ta*)-, but Ugaritic also has a synonymous noun *ksʾ*. A similar fluctuation is seen in the name of the Hattic goddess

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[12] Cf., e.g., Kronasser, *Etymologie* 96.

[13] See W. F. Albright, *The vocalization of the Egyptian syllabic orthography* 54 (New Haven, 1934).

[14] For further examples see R. Labat, *L'akkadien de Boghaz-köi* 33 (Bordeaux, 1932); E. F. Weidner, *Studien zur hethitischen Sprachwissenschaft* 26–7 (Leipzig, 1917); Couvreur 1937, p. 50.

[15] See Friedrich, *Archiv für Orientforschung* 14.329–31 (1944); cf. the *ḫ* : *š* metathesis in Babyl. *ḫašḫūrum* vs. MAss. *šaḫšūru* 'apple(-tree)'.

Kat(t)aḫḫas 'Queen', also spelled *Ḫataḫḫas*, *Kataḫgas*, *Ḫataggas*, etc.,[16] in Hittite *kilamni* beside *ḫilammar* 'gate building',[17] *isḫisaza* beside *iskisaza* (neuter nomin. *iskisa-* 'back'), *ḫameskant-*, *tetkessar* beside normal *ḫamesḫant-* 'spring, summer', *tetḫessar* 'thunder'. In any event the *ḫ* : *k* variation in Hittite is confined to words of non-Indo-European appearance and tends to occur in specific clusters (*sk*, *tk*; cf. *-akšu* beside *-aḫšu* in the men's names on the Cappadocian tablets). In other isolated instances Hittite *ḫ* alternates with zero (mostly in assimilatory environments: *idalawatti* for *idalawaḫti*, *sanzi* for *sanḫzi*, *esnas* for *esḫ(a)nas*), and once with *r* (in the famous instance *waḫnu-* : *warnu-*; cf., e.g., Kronasser, *Etymologie* 70), pointing to a velar articulation. Similar alternations are known from Akkadian (also from the Hurrianized dialectal environment of Nuzi). More striking is the great stability of Hittite *ḫ* in its high frequency of occurrence. The Akkadian materials from Boghazköy tend not to distinguish *ḫ* and ', but the Hittite texts, where no such ambiguity is apparent, present a remarkable picture of consistency and stability. Luwian and Palaic show minor disagreements (e.g., Luw. *ḫisḫiya-* vs. Hitt. *isḫiya-* 'bind', *para-* vs. Hitt. *parḫ-* 'chase', *naḫḫuwa-* vs. Hitt. *nakkes-* 'weigh, trouble', *saḫuitara-* vs. Hitt. *sakuwassara-* 'proper, regular', Palaic *aḫu-* vs. Hitt. *eku-* 'drink', occasional fluctuations *ḫ* : *k* : zero), but on the whole confirm the same impression.

When we turn to the alphabetic material from the 1st millennium B.C., the evidence for velar occlusion is further strengthened. Initial *Ḫ-* in Anatolian onomastics is regularly rendered into Greek as K- (e.g., *Ḫazzi* : Κάσιος, *Ḫilakku* : Κιλικίᾱ, *Ḫapalla* : Καβαλεῖς, *Ḫupisna* : Κυβίστρᾱ, *Ḫasammilis* : Κασμῖλος, *Ḫatti* : Κήτειοι). The Urartean *Kulḫai* may correspond to the later city of Κολχίς in Armenia (Ptolemy 5.12.8; he also has Χαβώρας for *Ḫabur*, elsewhere Ἀβώρας).

In Lycian, a latter-day survival of West Luwian, the etymological equivalent of Hitt. *ḫ*(*ḫ*) is \|/, i.e., the Chalcidian correspondent to East Greek X, denoting the aspirated velar stop, despite Kalinka's arbitrary transliteration as *k*: Hitt. *ḫantezzi-* 'first' : Lyc. *χñtawata* 'leader'; *zaḫḫiya-* 'fight' : *zχχãte* 'they conquered', infin. *zχχãna*; *laḫiyai-* 'strike' : *laχadi* 'he smote'; *ḫanna-* 'grandmother' : *χñna* 'mother'; *ḫuḫḫa-* 'grandfather' : *χuga* 'id.' (intervocalically the phoneme sometimes appears voiced, denoted *g*, e.g., *agã* 'I did' vs. *prñnawaχã* 'I built'; cf. the Luwian preterit ending *-ḫa* and the LXX transcription of Hebr. *ḥ-* in Χετταῖος vs. ‘- in Γάζα).

Certain words with a special sign which is usually transliterated as *q* may also be adduced. Pedersen's connections[18] *qastti*, *qanuweti* 'punish' : Hitt. *ḫaskizzi*, *ḫannai* 'judge' and *qla* 'chief' : Hitt. *ḫalanta-* 'head' are acceptable, but his argument of derivation from Indo-European gutturals must be rejected; curiously he opts for spirantal value of this conventional *q*-symbol in Lycian, but it may just as well represent a velar stop of dialectal origin but ultimately the same provenance as the normal reflex. The crucial instance is *trqqas* (nomin. sing.), *trqqñti* (dat. sing.), Milyan *trqqiz* (nomin. sing.). S. Bugge, A. Torp, and F. W. König translated it as 'god'; so still P. Meriggi, *Glotta* 35.291–6 (1956). V. Thomsen, Pedersen (*op. cit.* 39–40; *IF* 61.81–5 [1952]), H. Stoltenberg (*JKF* 2.104–6 [1952]), and H. T. Bossert (ibid. 209) saw in it the title of an official, plausibly the Lyciarch. Laroche (*RHA* 16.88–99 [1958], esp. 96–9) reconstructs *trqqas* and *trqqiz* as **Tarḫan(t)s* and **Tarḫints*, comparing the Hieroglyphic Luwian *Tarḫu(nt)-* (name of the storm-god), the stem of which occurs abundantly in epichoric Anatolian onomastics (Ταρκονδας, etc.).[19] Etr. *Tarkhu-* and Lat. *Tarquinius* are further long-term cognates, as is the Hittite verb *tarḫzi* 'conquer'.

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[16] Cf. Friedrich, *Kleinasiatische Forschungen* 1.92–3 (1930); E. Laroche, *Recherches sur les noms des dieux hittites* 28 (Paris, 1947).

[17] Unless the first form is ideographic for KI.LAM; cf. Friedrich, *Heth. Wb.* 281 (1952); K. Bergsland, *RHA* 4.272 (1938); Polomé, *Language* 28.448 (1952).

[18] *Lykisch und Hittitisch* 26–8, 46 (Copenhagen, 1945).

Lydian texts proper contain no discernible reflexes of laryngeals; A. Heubeck's attempts to find other vestiges (*Lydiaka* 61–4 [Erlangen, 1959]) must be called abortive. G. Neumann[20] has at least singled out the Hesychian λαιλας· ὁ τύραννος ὑπὸ Λυδῶν as pointing to loss of laryngeal (Hitt. *laḫḫiyalas* 'warrior'); but its probative value is minimal.

A further Greek-Anatolian correlation with bearing on the phonetic value of laryngeals is seen in the notorious equation Hitt. *Aḫḫiyawa* : Egypt. *ʾ-q-j-w-š* = *Aqaiwaša* (on the 1227 B.C. victory inscription of Merneptah at Karnak; cf. P. Kretschmer, *Glotta* 21.230 [1933]) : Gk. Ἀχαίᾱ (Mycen. *a-ka-i-wi-ja-*). The collation was first made by Götze (*Kleinasien zur Hethiterzeit* 26 [1924]) and subsequently propagated by E. Forrer in the context of the acrimonious "Aḫḫiyawa-Frage". We have a correspondence Hitt. (voiceless) *-ḫḫ-* : Egypt. *q* : Gk. χ. Although the latter two are doubtless stops, and although much later Semitic-Greek transcriptions (epigraphs, LXX, Josephus) equate *k* = χ, *p* = φ, *t* = θ, but *ṭ* = τ, *ḳ* = κ, the correlation of *-ḫḫ-* : χ at this early stage is not as strange as Friedrich (*Kleinas. Forsch.* 1.92–3 [1930]) and F. Sommer (*Die Ahhijavā-Urkunden* 354 [Munich, 1932]) thought, in view of the tendencies to velar occlusion which we have found in Anatolian *ḫ*. It is idle to argue what exact borrowings are involved; most probably both the Hittite and Greek forms hail from some unknown pre-Indo-European source.

Other evidence for a correlation Gk. χ : Anatolian *ḫ(ḫ)* is scanty. Kretschmer's explanation of Gk. ἰχώρ from Hitt. *esḫar* 'blood', as opposed to the etymological cognate ἦαρ (*Kleinas. Forsch.* 1.10–11 [1930]; *AÖAW* 1947, 19–20), is untenable by any reasonable standards of etymological rigor. Of interest is the suggestion of R. Blümel (*Glotta* 15.78–84 [1926]) and Kretschmer (*Glotta* 28.104–5 [1939]) that the rare Homeric ταρχύω (three times in the Iliad), which describes the Lycian last rites for Sarpedon (Il. 16.456, 674), means specifically ‘accord somebody a god’s or hero’s obsequies’ and is derived from the Anatolian *tarḫ*(*u*)- which we have studied above. However, unless the difficulties and contradictions presented by the post-Homeric τάρῑχος ‘salted fish; mummy’, ταρῑχεύω ‘embalm’, τάρχος ‘interment’, and the Hesychian ταρχάνιον· ἐντάφιον, τέρχνεα· ἐντάφια, στέρχανα· περίδειπνον ‘funeral feast’ are removed, this explanation remains very fragile. The name Χηττας in a Pontic inscription (Kretschmer, *Glotta* 27.128, 247 [1941–2]; *AÖAW* 1950, 546) presumably goes back to the Jewish diaspora in Asia Minor and proves nothing about Anatolian-Greek correlations. The fact remains that κ is the normal Greek rendering of *ḫ*: thus *Ḫarran*(*u*) is LXX Χαρράν < Hebr. *Ḥaran*, but the regular Greek form (via Anatolian channels) is Κάρραι.

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[19] Ph. H. J. Houwink Ten Cate, *The Luwian population groups of Lycia and Cilicia Aspera during the Hellenistic period* 125–8 (Leiden, 1961).

[20] *Untersuchungen zum Weiterleben hethitischen und luwischen Sprachgutes in hellenistischer und römischer Zeit* 69–71 (Wiesbaden, 1961). Neumann proves, inter alia, that the dynastic name *Gyges* denotes a waterfowl, like several other names in his family (e.g. *Mermnos*, *Ardys*), and has no connection with Hes. γυγαί· πάπποι. The latter might well be related to Hitt. *ḫuḫḫa-*, only there is no indication where it comes from. Thus nothing proves that *ḫ(ḫ)* survives as a velar stop in Lydian.

Occasionally, especially in late transmission, Anatolian *ḫ* also corresponds to zero in Greek. As an example, the Hurrian word *ḫubrušḫi*-, Ugar. *ḫbrṧ*, Hitt. *ḫuprusḫi*- ‘clay jar, terrine (used in metal-working)’ appears in Gk. ὄβρυζα (4th cent. A.D.) and earlier in Lat. *obrussa* (Cicero +); cf. E. Benveniste, *Revue de philologie* 27.122–6 (1953). Among proper names, cf. e.g. Ἀμανός < *Ḫamanu.*

More problematic is the representation of *Ḫ*- by spiritus asper in Μήτηρ Ἵπτα or Ἵππα in inscriptions from Lydia and the Orphic Hymns. She is a form of the Magna Mater and has been connected by Kretschmer (*Glotta* 15.76–8 [1926]) with the Hurrian *Ḫebat*, who, let us recall, is syncretized with the Sun-goddess of Arinna by Queen Pudu*ḫepa* in KUB XXI 27. This identification is quite striking and must not be lightly overlooked, even if one is inclined to reject R. D. Barnett’s further adduction of Ἑκάτη (*The Aegean and the Near East* 220 [1956]). Even if *Ḫebat* is Hurrian, the name reached Greece through Anatolian mediation.

From the preceding material we may now draw some summary conclusions: “Sturtevant’s law” indicates that there was at least one phonemic voiceless : voiced (or fortis : lenis) opposition within the distribution of Hittite *ḫ*(*ḫ*). The exported Akkadian model left a wide margin of approximatory possibilities (laryngal, pharyngal, postvelar, velar fricatives) in the borrowing idioms, including the possible medial use of *ḫ* for the glottal stop (but never initially!). Tendencies to velar occlusion appear particularly at a late date in the Anatolian orbit, where Greek transcriptions by κ or χ (occasionally spiritus asper or zero), and Lycian renderings by χ, *g*, or “*q*” provide a wealth of indications.

THE ANATOLIAN LARYNGEALS AS EVIDENCE FOR INDO-EUROPEAN LARYNGEALS

A preponderance of the philological material in the preceding section was of distinctly non-Indo-European appearance (proper names, international culture words, Hattic or pre-Luwian elements, etc.). This result was unavoidable, because of the need to traverse language and script boundaries. Yet we also encountered verbal roots like Hitt. *tarḫ-* and morphemes such as Luw. *-ḫa* (Lyc. *-χã*), and there is nothing to indicate that the Anatolian phonemic inventory proper suffered any dislocation through foreignisms. Nor is it reasonable to infer parasitic growth of an *ḫ* (carefully stripped of diacritics "for typesetting convenience") as a medial hiatus stopper or word-initial cockneyism in the Indo-European ingredients of Anatolian (as argued notably by Kronasser 1956, pp. 75–96, 244–8). Assuming an /h/ or glottal stop as a secondarily phonemicized excrescence is a plausibility, but a set of (post)velar spirants is much more difficult to exorcize by such devices.[21] There are two categories of forms where a comparison with other branches of Indo-European yields results in terms of the laryngeal theory: roots on the one hand, and inflectional morphemes on the other. The former are subject to etymological identification with its many uncertainties, the latter are few in number but susceptible of much more rigorous determination.

Lists of Hittite roots and morphemes which contain laryngeals and are receptive to comparativistic elucidation in terms of Indo-European are found in much of the standard laryngealistic literature. Often these lists appear as succinct treatises on etymology, tending to be colored by the theoretical prejudices of their authors; yet they are generally not as extremely individualistic as the discussions around the non-appearance of aprioristically anticipated laryngeals in Hittite. Here everybody is in the presence of the only autonomous phonemic reflexes of Indo-European laryngeals and feels more obligated to stick to the facts. Perhaps the latest such list is that of Lehmann (1952, pp. 25–6) which is largely based on Hendriksen (1941), with a sprinkling of Sturtevantian intermixture. In perusing it one often has a feeling that many items badly need support rather than provide it. One has the choice of either attempting a cumulative effect by amassing etymological detail (a task better reserved for my projected etymological dictionary of the Anatolian languages), or concentrating on a select group of truly persuasive data. It is the latter recourse I shall follow in the present survey.

It seems likely, especially on the basis of the study made by Hendriksen (1941), that the loss of Indo-European laryngeals in Hittite is sometimes universal and conditioned by environment. Thus next to a stop we find only instances like *tetḫ-*, without clear etymology and with the tendency to occlusion noted previously (*tetk-*). In Indo-European context we have noted instead occasional assimilation of *ḫ* to stops even across morpheme boundary (*-aḫ-ti* > *-atti*). It seems likely that in prehistoric Anatolian such a development took place generally but that the remaining occlusive was never quite the same after that (cf., e.g., the voiceless aspirates in Indic), for at least a *t* of this origin is not subject to affrication in historical Hittite (e.g. *tittiya-* <

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[21] It should be pointed out that the phonemic presence of initial *ḫ-* often distinguishes between wholly different words. A list is given in Polomé's review of Kronasser 1956, *RBPhH* 39.557–8 (1961); cf. *ḫanna-* 'grandmother' vs. *anna-* "mother"; *ḫanda* 'accordingly' vs. *anda* 'therein'; *ḫarkanzi* 'they hold' vs. *arkanzi* 'they cut up'; *ḫuekzi* 'he conjures' or 'he slaughters' vs. *wekzi* 'he demands'; *ḫasta* 'he begot' vs. *asta* 'he remained'; *ḫarrai* 'he pounds' vs. *arrai* 'he washes'; *ḫarszi* 'he ploughs' vs. *arszi* 'it flows'; *ḫuskisi* 'thou waitest' vs. *uskisi* 'thou seest'. For noninitial parallels we might add e.g. *tarḫanzi* 'they overcome' vs. *taranzi* 'they say'.

**ti-tA-iya-*, root **(s)teA-*, or the 2nd person singular ending *-ti* of the *-ḫi* conjugation, reshaped from *-ta* < **-tAe*; cf. the Skt. 2nd sing. perfect *-tha*).

The environments in which we find Indo-European laryngeals remaining intact in cuneiform Anatolian are initial prevocalic and before *w-*, medial intervocalic, and between vowel and continuant or vice versa. Interconsonantal or final laryngeals are phonetically or morphologically conditioned accidents or freaks.

Initial prevocalic laryngeal is best attested before full-grade *a*-vowels, thus pointing to IE **A-*; examples are Hitt. *ḫant-* 'foreside', *ḫanza* 'before', *ḫanti* 'apart' (cf. Lat. *ante*), *ḫarkis* 'white' (Gk. ἀργής), *ḫassa-* 'hearth' (Lat. *āra*; cf. locative *ḫassi* = Oscan *aasai*).

The data for *E-* are poor; Hitt. *ḫekur* 'peak', *ḫenk-* 'bestow', *ḫink-* 'bow down', *ḫenkan-* 'death, disease, plague' may have Indo-European etymologies; the first has been connected with Skt. *agra-* and Gk. ὄκρις, which reveal no *e*-coloration; one or more of the *ḫenk-* words might be related to the root of Welsh *angheu*, Old Irish *éc* 'death', or W. *anghen*, OIr. *écen* 'necessity' (**Hn̥k̂-*), and to the root form **Hnek̂-* (Lat. *nec-*, Skt. *naś-*, etc.). Other forms with *ḫe-* are *ḫes-* 'open' and *ḫeus* 'rain', without clear etymology.

For non-apophonic **o-* (i.e., **A^{w}e-*) we are in a luckier position. The lone instance, Hitt. *ḫastai*, Luw. *ḫassa-* 'bone' (cf. Gk. ὀστέον), has now been joined by Luw. *ḫawi-*, Hierogl. Luw. *ḫawas* 'sheep', and one is inclined to forget the secondary proliferation of *-i-* stems in Luwian in connecting *ḫawi-* directly with Lat. *ouis*. In view of the rarity of such 'basic *o*' it is remarkable indeed to find the two crown witnesses present in Luwian.

One is hard put to account for the exceptional frequency of initial prevocalic *ḫu-*, in the absence of other clusters of initial laryngeal + continuant. Preconsonantal *ḫu-* is equally common, sometimes in ablaut-based paradigmatic complementarity (*ḫuek-* : *ḫuk-*). Why there is no parallel *ḫi-* remains a mystery. It is idle to argue for some kind of parasitic origin, comparable to the rampage of spiritus asper over initial upsila in Attic Greek; the very contrast *ḫu-* : *w-* is distinctive. The good etymologies include *ḫuwant-* 'wind' (Lat. *uentus*), *ḫuiszi* 'he lives' (Skt. *vásati*), *ḫulana-* and *ḫuliya-* 'wool' (Lith. *vìlna*, Lat. *lāna*, Gk. οὖλος; cf. Friedrich, *KZ* 77.257 [1961]). The tired Sturtevantian list of half-baked approximations has received some additions in recent years (e.g., Neumann's comparison of *ḫurpasta-* 'leaf, peel' with Lat. *uerbēna* 'sacred twigs' in *KZ* 77.79 [1961]), but such "evidence" constitutes a drag on laryngeal theory rather than proof of its truth.

There are some fair etymologies with initial *ḫ-* in other circumstances: Hitt. *ḫissa-* 'pole, shaft (of chariot)' agrees with Skt. *īṣā* 'id.', and it takes a Kronasser to suggest an Indic loanword in Hittite with "parasitic *ḫ-*". Hitt. *ḫalzai* 'cry, call' was connected long ago with Goth. *laþōn* by A. Juret (*Vocabulaire étymologique de la langue hittite* 20 [Limoges, 1942]) in a lucid interval too feeble to pierce the general darkness of that work; a root **Aél-t-*, *Al-ét-* seems indicated by this collocation.

Intervocalic evidence for laryngeals is least impeachable; here "Sturtevant's law" combines with vowel color as a criterion of differentiation, and morphemic data are joined to etymological. The factitive suffix *-aḫḫ-* < **-eA-* (*newaḫḫ-* 'make new', Lat. *nouā-*) is among the strongest pillars of the laryngeal theory, and so is the 1st person singular ending *-(ḫ)ḫi* in conjunction with the mediopassive 1st sing. ending *-(ḫ)ḫa(ri)* and the Luwian and Lycian preterit 1st sing. *-ḫa* and *-χã* (cf. the Greek and Sanskrit 1st sing. perfect ending *-a* in οἶδα, *veda*, where "Brugmann's law" data from Indic confirm the reconstruction *-Ae*; cf., e.g., Lehmann 1952, p. 30). Compared to such material the significance of questionable etymologies such as Hitt. *laḫḫa-* 'campaign, war' : Gk. λᾱ(ϝ)ός 'host, people' fades badly. The only truly significant word etymologies are *paḫḫur* 'fire' (Gk. πῦρ) and *meḫur* 'time' (Goth. *mēl*), *seḫur* 'urine' (OIcel. *súrr* 'sour'), where the differentiation of (voiceless) *-A-* and (voiced) *-E-* under "Sturtevant's law" is particularly clear.

Medial position next to a continuant is sometimes brought about by the Anatolian developments from syllabic semivowels (e.g. *sanḫa-* < **sn̥Ho-*). Some of the best etymologies are found in such context, e.g., Hitt. *tarḫ-* 'conquer' (Lat. *(in)trāre*, Skt. *tara-*, *trā-*, *tīrṇá-* 'overcome, rescue, etc.'), *sanḫ-* 'strive' (Skt. *sanóti*, *sātá-* 'gain'), *palḫis* 'broad' (Lat. *plānus*), *paḫs-* 'protect' (Lat. *pāscō*), *esḫar* 'blood' (Skt. *ásṛk*, Gk. ἦαρ), and a few others. Here the determination of colors is difficult, being generally possible only through Indo-European comparison (as, e.g., in *tarḫ-*).

We have thus found Anatolian attestation for at least three laryngeals, *A*, *E*, and A^w; *A* shows evidence of voicelessness, *E* of voice, while A^w is so far undetermined in this regard.

NON-LARYNGEAL ANATOLIAN EVIDENCE FOR INDO-EUROPEAN LARYNGEALS

In considering the sundry comparativist interpretations of Hittite evidence for the laryngeals one is struck by the curious either–or attitude which prevails in them. There are those who believe that concrete Hittite attestation is the only trustworthy criterion for positing a laryngeal, and in principle discard all other data. Even those who seek a more reasonable balance usually think that the question of survival of laryngeals in Hittite was a neck-or-nothing proposition: either you have the full reflex in Hittite, or you have but a gaping zero, to be plugged up with systemic generalizations. There are the cases of Anatolian full-grade initial *e-* and *a-*vocalism (Hitt. *eszi*, *appa*, cf. Lat. *est*, Gk. ἀπό) which demand two varieties of lost laryngeal (a different kind of *E* and *A*) in many theorists' books. One wonders if there was also a A^w which disappeared in Hittite: two examples might be *ais* 'mouth' (Lat. *ōs*) and *dāi* 'he takes' (from IE **dō-* < deA^w-), i.e. $*doA^we$.[22] Thus at least six laryngeals are discernible under this scheme, at least two of which (one *E* and one *A*) seem from

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[22] See especially Benveniste, "Don et échange dans le vocabulaire indo-européen", *L'année sociologique*, 3ème série (1948–49), 7–20 (1951); cf. also my *Laryngeals and the IE verb* 73 (1960).

Anatolian to have had distinctive (i.e. minimal) voice or voicelessness; that one A^w was distinctively voiced we know from Skt. *pibati* < **pi-p*A^w*-eti*.

What I have discussed so far is pretty much common knowledge. I wish to advance a little farther in the belief that Anatolian, like other branches of Indo-European, may also contain what might be called laryngealistic debris, i.e., traces of the lost laryngeals other than mere vowel coloration. These ideas are expounded in more detail in my *Laryngeals and the Indo-European verb* and other publications.

We come to a very much neglected question: what happened in Hittite weak grades of roots with a laryngeal suffix? Probably with the laryngeals that remained the reflexes were such as not to be distinguishable from other grades in the text (e.g., **r̥A* > *arḫ*). But how about the lost laryngeals? I believe that there are some significant instances involving the labiovelar variety. There is the word *kaluti-* meaning 'line, list', which I reconstruct as **kl̥*A^w*dhi-* and compare with Gk. κλῶσις 'spinning, line, clue', beside κλώθω 'spin' with full grade vocalism. There is also *aruna-* 'sea' corresponding to Skt. *īrṇá-* 'stirred' (cf. *arṇas-* 'sea'), from a root which gives evidence of a labiovelar laryngeal suffix. There is further *daluki-* 'long' beside Skt. *dīrghá-*. Scanty though this is, it permits certain tentative conclusions. Evidently in Hittite a labiovelar laryngeal between a syllabic semivowel and a nonsyllabic has been vocalized into *u*, and this could hardly have taken place in Hittite itself, where in other positions labiovelar laryngeals seem to have lost their labialization, or to have disappeared without leaving a labial glide.

The type of reflex (*alu*, *aru*) reminds one of the Greek αλα, αρα, and of the Balto-Slavic acute intonation of weak grade root forms with an original laryngeal suffix. It is conceivable that we are dealing with two levels in the disappearance of laryngeals; before the time of operative contraction of syllabic + laryngeal before nonsyllabic, both the labiovelar laryngeal, as shown by Hittite, and others, as indicated by Greek, may have been vocalized in the sequence *syllabic semivowel – laryngeal – nonsyllabic*. Subsequent restoration of the laryngeal from the rest of the paradigm would have yielded renewed sequences of semivowel-laryngeal-nonsyllabic, which then followed the regular developments. Highly hypothetical though most of this be, I venture to assume that IE **R̥*A^w*C* yielded **R̥RuC* (*R* = semivowel, *C* = nonsyllabic) at a time when laryngeals in other positions were intact. I fully agree with Kuryłowicz (*Apophonie* 200 [1956]) that the Greek variants like θάνατος : θνᾱτός reflect two chronological phases of the zero grade of *seṭ* roots. But rather than accepting his explaining away of θάνατος as secondary I assume it to be the result of an earlier development than the standard reflexes, one that is reflected also in Hittite, and is indistinguishable from the other in Balto-Slavic. Gk. αρα, αλα, ανα, αμα are paralleled by other reflexes, showing that all semivowels could be thus involved: e.g., πρίασθαι, διερός, κύαμος. Gk. βίοτος would seem to belong typologically with Hitt. *kaluti-*, because the root is **g*^{w}*ey-*A^w*-*. But, much as Gk. κάλαθος has the normalized reflex αλα beside the "restored grade" variant in κλῶσις, βίοτος has its ο only from the normalization of triple ε, α, ο as shwa reflexes in paradigmatic context: e.g., δω- : δοτός leading to βιω- : βίοτος, instead of original *$g^{w}iA^{w}$- < *$g^{w}iyu$-, seen in the hitherto inexplicable Skt. desiderative *jujyūṣati*, and a restored *$g^{w}iA^{w}$- > *$g^{w}\bar{i}$- in OCS *žiti*.

The assumption we made will now enable us to bring together such hitherto unexplained correspondences as that of Hitt. *sanḫzi* with Skt. *sanóti*, Gk. *ἄνῡμι. Skt. *sātá-* shows that the root is *seṭ*. Assuming that the laryngeal is labiovelar, the IE paradigm may be reconstructed as follows:

3rd sg. *$sénA^{w}$-ti
1st pl. *$sn̥A^{w}$-més > *s(n̥)nu-més (regulated by Sievers's law)
3rd pl. *$sn̥A^{w}$-énti

The aberrant development seen in the 1st person plural occurred also in the 2nd person plural, throughout the dual, and all through the middle, except the 3rd plural and probably the 1st singular. Thus, far from being an exception in the paradigm, it must have caused significant disruption, although the hierarchic primacy of the strong cases of the active singular curtailed its potential of analogic expansion. However, it seems that under the impact of other developments Sanskrit and Greek generalized the new type of conjugation, while Hittite restored paradigmatic unity on the basis of the strong grade forms, thus *sanḫzi*, 2nd pl. *sanḫteni*, where the labial component of the original laryngeal seems to have been lost.

I also count with the symmetric possibility that one *E* (which we may write E^{y}) was capable of undergoing the following developments:

$R̥E^{y}C$ > *R̥RiC*, with subsequent restorations of the laryngeal in certain morphological contexts.
$eE^{y}e$ > *ēye*
$eE^{y}C$ > *ēC*.

Evidence for this type of laryngeal is found chiefly in Indo-European morphological categories, such as the stative verbal suffixes and the optative stems. Here we shall discuss only Hittite material in support of this assumption.

E. Risch published in *Corolla linguistica* (1955) an article about the so-called diphthongal stems of the Hittite *-ḫi* conjugation. He maintained that paradigmatic oppositions like *dāi* : *tiyanzi*, *ispāi* : *ispiyanzi*, *sāi* : *siyanzi* reflect true ablaut rather than partial extensions in /y/. He also noted the frequent etymological *ē*-vocalism in the roots concerned: **dhē-* in *dāi*, **spē-* in *ispāi* (OCS *spěti*), **sē-* in *sāi* (Lat. *sēmen*), **ptē-* in *piddāi* 'fly', **wē-* in *ḫuwāi* 'run' (Gk. ἄημι). Translating his equations into laryngealistic form, Risch was led to posit

e + the first laryngeal > Hitt. *āi*, Lat. *ē*
o + the first laryngeal > Hitt. *āi*, Lat. *ō*
Vocalized first laryngeal > Hitt. *i*(*y*), Lat. *a*, Skt. *i*.

In the Hittite *-ḫi* conjugation the radical *a*-vocalism in all stem types corresponds to the *o*-forms of the strong active singular of the Indo-European perfect. Accordingly *dāi, ispāi, sāi, piddāi, ḫuwāi* reflect _*dhoE^{y}e_, _*spoE^{y}e_, _*soE^{y}e_, _*ptoE^{y}e_, _AwoE^{y}e_, yielding pre-Hittite _*dhōye_, _*spōye_, _*sōye_, _*ptōye_, _*ḫ(u)wōye_. Likewise forms like the 3rd plural *ḫūyanzi* are regularly descended from _*AuE^{y}onti_, with a palatal /y/ glide and lengthening of the preceding syllabic semivowel.

It is now time to summarize the Anatolian data. In looking over the following table, we notice a serious lack of symmetry: the laryngeal _E^y_ yields an Anatolian *y*-glide, while the relevant labiovelar counterpart apparently does not exude *w*. On the other hand, the Indo-European vocalization of the labiovelar laryngeal into *u* is reflected in Hittite, while of the postulated vocalization of _E^y_ I have found no Hittite example. Yet such inconsistencies are in themselves no more remarkable than for example the vicissitudes of the labiovelars in Goidelic Celtic, with delabialization of the tenuis and the media aspirata (OIr. *cethir, gonaid*), as opposed to the labialization of the media (*ben*). These incongruities would appear less troublesome, if we had more phonological and phonetic data concerning them.

TENTATIVE SCHEME OF THE ANATOLIAN (HITTITE AND LUWIAN) REFLEXES OF INDO-EUROPEAN LARYNGEALS

	Initial:	Medial (esp. between syllabics):
E_1 (voiceless)	Lost (*eszi*)	-*y*- (*dāi*)
E_2 (voiced)	*ḫekur*	*meḫur*
A_1 (voiceless)	*ḫanti*	*paḫḫur*, *tarḫzi*
A_2 (voiced)	Lost (*appa*)	Lost
A_1^w (voiceless)	*ḫ*- in one case (*ḫastai*, Luwian *ḫawi*-);	-*ḫ*- in one case (*sanḫanzi*);
A_2^w (voiced)	probably lost in the other (*ais*)	lost in the other, without leaving a *w* glide (*dāi*); one or both gave IE -*u*- in _R̥A^{w}C_ which is seen in Hittite (*kaluti*-).

INDO-IRANIAN EVIDENCE

HENRY M. HOENIGSWALD

Indo-Iranian furnishes some of the most substantial types of evidence for the reconstruction of laryngeals. It is weak only on the side of the vowel coloring effects, since IE *a* and *o*, the full grade vowels reflecting earlier laryngeals with one following allophonically varied vowel phoneme, as well as the corresponding lengths representing the same laryngeals after the vowel and before a syllable boundary, were merged with *e*, *ē* into *a* and *ā* respectively.

First we turn to the voiceless aspirates of Indic, with the corresponding voiceless spirants of Iranian.[1] These function as "unit" phonemes inasmuch as

(1) they are treated as such in Hindu grammar, and

(2) in the Indic scripts;

(3) they fail to lengthen syllables for the purpose of Vedic meter; and

(4) even prehistorically they apparently fail to lengthen syllables for the purposes of Sievers' law (thus . . . *athya* . . . on a par with . . . *atya* . . . . . . *asya* . . . and not with . . . *aktiya* . . .).

On the other hand there are phonemic and morphophonemic indications pointing to the secondary nature of this unitary status:

(5) The voiceless aspirates cluster more like double-consonant clusters than like unit consonants. For instance, initial groups like *phl-* *khn-* do not exist (*khy-*, to be sure, does). The Iranian examples of *fr-* and the like reflect, of course, an earlier *pr-*.

(6) As Lehmann has reminded us, *kh* is not palatalized before IE *e*, *i*, *y* (*ch-* having an entirely different antecedent, "*sk-*").[2] This is most smoothly explained by seeing in the aspiration an earlier consonant which intervened between *k* and the vowel or semivowel.

(7) Aside from initial *sph-* *sth-* *skh-* which sometimes represent an *s* movable prefixed to voiced aspirates,[3] such extra-Indoiranian etymologies as have been advanced with any promise mostly involve root-final position for the voiceless aspirates. This is supported by the circumstance that, as a matter of fact, not only are initial clusters with voiceless aspirates followed by another consonant excluded (5 above), but

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[1] Forms quoted are Sanskrit unless otherwise specified. Aside from general laryngealist writings and from the authors quoted in the notes, see in particular Kuiper, *India antiqua*, 203 ff.

[2] *PIEP*, 32.

[3] Kuryłowicz, *Apophonie*, 376 ff.

initial voiceless aspirates per se are rare. Initial *th-* occurs only in a few middle-Indicisms or otherwise foreign words. One of the few tenable etymologies involving an initial voiceless aspirate is *khid-* 'tear' : Lat. *caedere,* and possibly a few items with initial *ph-*.

(8) Very significantly, the list of *-th* final roots contains a number of *CCath* combinations: *prath-*, 'extend', *vyath-* 'be unsteady', *śnath-* 'pierce', *śrath-*, *ślath-* 'loosen', *grath-* 'tie', *krath-* 'be jubilant', *klath-* 'turn', *kvath-* 'boil'.[4] By contrast the only true *CaCth* guṇa is *meth-* 'alternate'.

(9) Roots of the type *math-* 'stir', *śrath-* 'loosen' are seṭ and have a present of the ninth class (*mathnāti*).

(10) In Iranian, the nominative and the genitive of the word for 'path' are (Av.) *pantā̊, paθō.*[5]

These peculiarities are best explained by reconstructing the voiceless aspirates as earlier clusters consisting of the voiceless unaspirated stops and a second component. Initial *th- kh-* are rare, just as many other clusters are rare initially (the chief exception being those with *-r- -l-* and to some extent *-y-* – namely those which figure under 8 above). Root-final *-th* (8) appears in the precise spot in which consonant clusters are in order: according to Benveniste's scheme, three-consonant or "suffixed" roots have the full grade form *CCeC* (thème II) rather than *CeCC* (thème I) if amplified by a consonantal addition. The roots under (8) are thus original four-consonant combinations, regular fashion. In all these respects the voiceless aspirates behave in a manner radically different from the behavior of the remaining stops, including of course the voiced aspirates.

The second component of this earlier cluster is in complementary distribution with vowel length and with shwa ("primum", or the three shwas reflected in Greek), neither of which is found after voiceless stop and before vowel. It alternates with vowel length (combined with *a*-color) in *ratha-* 'chariot' (i.e., 'wheeled') < *rotH-o-* : Lat. *rota* (< *rotā* < *roteH*) and with *ə* > Skt. *i* in *mathita-* if it is allowed that this form is an analogical replacement for **matita-* (originally *math-* before vowel : *mati-* before consonant). It may then be inferred that (a) voiceless aspiration, (b) (non-lengthened-grade) vowel length, and (c) shwa (or the shwas) represent one phoneme or rather one set of phonemes, the laryngeals. The rarity of initial *th-* etc. is thus precisely on a level with the rarity of full-grade *a* and *o* in other than initial position.[6]

This evidence is strong, but many questions remain. (1) The representation of the laryngeal clusters in the other IE languages is notoriously uncertain. (2) A morphophonemic case exists only for the dental (see preceding paragraph). (3) The clusters *sph sth skh* pose a special problem. While it is probable that *s* movable plus *bh,* etc., yields *sph* etc., there is also some evidence to suggest that *s* plus *t* may yield *sth* (Skt. *sthag-* 'cover' : Gk. τέγος etc.). If *sphya-* 'ritual wooden sword' is indeed in alternation with Gk. ἀσπίς 'shield', OE *æspe* 'aspen', the initial laryngeal might in some cases be to blame.[7] (4) The velar *kh* has a somewhat more definite IE standing according to A. Meillet and others who relate it to Slav. *x*.[8] On *ch* (always geminate internally) see above. That the Iranian voiceless spirants come in part from voiceless unaspirated stops in clusters has already been mentioned.

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[4] Whitney, *Roots,* 245; Burrow, *Sanskrit language,* 291; Sturtevant, *IHL,* 84; Lehmann, *PIEP,* 83. See my contribution to the *Transactions of the 25th International Congress of Orientalists,* 2. 323 ff.

[5] Kuryłowicz, *Apophonie,* 377^{24}, with other Iranian material contributed by Morgenstierne.

[6] See also *Lg.* 28, 182 ff. on *sH̯* > *s* generally in IE (although perhaps not always in Hittite, if Hitt. *ish-* 'bind' is really = Skt. *syati* [< *sH-yati,* root *sā-*]; see Watkins, *Lg.* 35.20 [but the Hitt. form could still be a reduplicated present rather than *sH* > *ish*]; with Martinet's comment, *Économie,* 214.

It has been observed that the aspirating laryngeal in these instances (insofar as it can be determined from its behavior in Anatolian – loss – or from its coloring effect elsewhere – *a*-color) is, in particular, **h* or Sturtevant's second laryngeal.[9] There is no clear evidence for the other two "voiceless" laryngeals. The fourth, with its alleged voicing, has, however, left at least two inextensive but very telling traces. The first consists of IE *pō* :(*pi-*)*b*(*-eti*) 'drink' (Skt. *pā* :*pibati*); if we write *peγ* :*pi-pγ-eti* the irregularity is resolved.[10] While this case is of course not specifically Indo-Iranian (cf. OIr. *ibid* and the indirect testimony of Lat. *bibit*), the other instance once again lines up Sanskrit against the other Indo-European languages (Iranian, as well as Baltic and Slavic, are naturally inconclusive): in the *h* of *mahā-* 'great', *hasta-* 'hand', *aham* 'I' and perhaps *duhitar-* 'daughter' it is possible to see the *ǵ* which seems to be represented in the other IE languages (Goth. *ik*, etc.) with the addition of *γ*, producing aspiration and in this case merger with the inherited aspiration of IE *ǵh* in Indic.[11] At least one of these etymologies may conceivably be taken to show the supporting ablaut alternation that corresponds to *pō* ~ *b* : Lat. *ego*, Gk. ἐγώ on one hand, but Skt. *aham* from '*eǵ-γem* or '*eǵ-γom*) on the other.[12]

In short, the voiceless stops (at least the dental) plus the second laryngeal seem to have resulted in Skt. voiceless aspirates. The labial voiceless stop with *γ* appears to have yielded *b* everywhere – the greater sweep in this case possibly being connected with the fact that the slot for the voiced unaspirated stop constitutes otherwise a gap in the IE phonemic system, ready to accommodate a former cluster from the crumbling inventory of laryngeal groups. The voiced *ǵ* plus *γ* may have merged with Indo-Iranian *gh* Skt. *h* (note that Indic is the only branch of IE to have phonetically voiced aspirates), while simply shedding the laryngeal in the other IE languages.

There is furthermore the peculiar sandhi rule under which *-t a-*, *-t y-* (and so in general for vowels and semivowels following final stops) results in *-da-*, *-dy-* despite the fact that external sandhi is in principle based on the pause form and that both *-ta-* and *-da-* occur internally. Possibly this, too, is an indirect effect of a laryngeal.

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[7] Thieme, *Heimat*, 15 f., against older etymologies involving a consonant metathesis. The often-instanced etymology of Skt. *sthā-* suffers from the presence of *s* before the stop. See also Kuryłowicz, *Apophonie*, 377^{25}, on the possibility that *khan-* reflects a word-medial laryngeal.

[8] *Slave commun*^{2} (with A. Vaillant), 25 f.

[9] Lehmann, *PIEP*, 84.

[10] See, however, Cowgill in this volume, pp. 174 f.

[11] Sturtevant, *IHL*, 86. [But note p. 108 of this volume. – Ed.]

[12] But also Gk. ἐγών.

There is, after all, good reason to hold to the belief that all "initial" vowels and most initial semivowels (namely, all those not followed, in the root skeleton, by another semivowel) were preceded by a laryngeal as the true initial.[13] This has suggested to some that we have here the analogic extension of the particular sandhi expected in those instances in which the initial laryngeal was *γ* (*t γe-* > *-da-* as in *pibati*, and parallel to *-t be-* > *-dba-* and the like) to others involving one of the three voiceless laryngeals. The analogic replacement is, however, not particularly plausible.[14]

The lengthened augments and reduplications of Sanskrit are difficult to judge, because whatever assumptions we make regarding their original conditioning, analogic extensions – under metrical pressure and otherwise – must be supposed to have thoroughly obscured the picture. It seems to be a fact that the lengthened augments in particular favor roots beginning in semivowels (in the IE sense, including nasals and liquids).[15] This constitutes part of the evidence for believing that most apparent initial semivowels were in fact initial clusters, of a phonemically permitted kind, of laryngeal plus semivowel; it has some backing from the prothetic vowels in Greek and Armenian. It remains to be seen to what extent this explanation can stand up under the reevaluation implied in Kuryłowicz's recent treatment, in which a great many reduplications are accounted for as analogical reversals of Sievers' law: since *-ā tiya-* alternates with *-a tya-*, short reduplications become normal before two consonants, long reduplications before one consonant long after the period in which the progressive conditioning of which Sievers' law is a part had ceased to be in force.[16] Even now, however, Kuryłowicz himself acknowledges that some of the lengths are due to laryngeals.

"Brugmann's law" seems to work if it is formulated as follows: "IE *o* before a non-syllabic semivowel in an open syllable yields Indo-Iranian *ā*", provided that laryngeals following such semivowels (and thus closing the preceding syllable) are still intact. This is a valuable indication of relative chronology. It accounts for a number of apparent exceptions and paradigmatic irregularities, such as when the Vedic first person form of *kṛ-* is *cakara* as against the third person *cakāra*: the first person form contains the ending corresponding to Hitt. *-hi*, while the third person form has simply a vocalic ending. Kuryłowicz, who conceived this solution, too, has again relinquished it in favor of an ingenious morphological explanation.[17]

The Rigvedic scansions *paantu* (= *pāntu*) etc. are equally doubtful. They have been considered metrical archaisms reflecting the sequence *peHe* . . as it existed before its common IE (though not necessarily Anatolian) contraction.[18] Since such contracted lengths have also been held responsible for the circumflexes of Greek and Baltic, the Vedic "distraction" is occasionally referred to as the Sanskrit circumflex.[19] Even those who accept this development must however concede the existence of many distracted scansions which were never dissyllabic.[20] What is more, the nature of the Vedic tradition makes it quite conceivable that the analogy of *adantu* : *atti* (from *ad*- 'eat') could even have created ex novo a *paantu* from *pāti*. Likewise, augmented forms like *aicchat*, which are not just metrical inventions, need mean little more than that analogic change has operated after the older $a + i$ had gone to *e* (and the older $\bar{a} + i$ to *ai*); this may imply, at most, a juncture phoneme, but is even less valid proof for the presence of a laryngeal consonant than the sandhi of *-t a-* referred to above.

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[13] *Lg*. 30, 471.

[14] Kuryłowicz, *Symbolae* ... *Rozwadowski*, 95 ff.

[15] Burrow, *Sanskrit language*, 303; Emeneau, *Lg*. 34, 414.

[16] *Rocznik orientalistyczny* 4.196; *Apophonie*, 339 ff.

[17] *Apophonie*, 321 ff.

[18] *H* = any laryngeal.

It remains finally to raise the comprehensive question of the relationship between *ə* (i.e., syllabic laryngeal), the syllabicity of semivowels as described by Edgerton and others, and the so-called shwa secundum, insofar as Indo-Iranian has a contribution to make. To keep the argument within reasonable bounds, we simply state a hypothetical solution thought to account for a variety of phenomena from various areas of the IE world, together with the particular Indo-Iranian data as they seem to fit in. Necessarily, the presentation is schematic and oversimplified.

We assume that the semivowel allophones recovered by Brugmann, Sievers, Edgerton, and others hold for IE; that Sievers' law is valid not only for the environment *VCC-V* ("(. . . *akt*)*iy*(*a* . . .)") but also (on the ground chiefly of Greek data) for *VCC-C*; and that the guiding principle of zero-grade syllabicity is that of a nonphonemic syllabic (vocoidal) segment making its appearance automatically between consonants after every sequence of two consonants (. . . CC_eCC_eC . . .), with pause (but not "word-boundary") possibly functioning like a consonant. For instance, $_ey$ before vowel appears as "(. . . *akt*)*iy*(*a* . . .)", while before consonant $_ey$ and y_e both merge into "*i*". In Greek, however, some of the semivowels retain the difference: $_er$ (phonemically "(. . . *akt*)*r*(*t* . . .)") yields αρ (ορ), while r_e ("(. . . *at*)*r*(*t* . . .)") is ρα (ρο);[21] in Indic, both give again the same result *r̥*. If the clustering consonants are stops rather than semivowels, the picture is far less clear; but some of the features attributed to "shwa secundum", the "reduced grade vowel" which provides "relief" for heavy consonant groups, suggest that its appearance is governed by the same principle of preventing triple consonant clusters. In the historical languages, the erstwhile automatic shwa secundum has of course become phonemic through merger with one or another of the existing syllabics (Gk. ι, Celtic, etc., *a*?). At first it seems to be characteristic of the development in many of the daughter languages that $_e$ remained automatic: when a sound change simplifies a consonant sequence, the segment $_e$ disappears or changes its place according to the old rule (so that $^{**}tr_emp_etl$ becomes, upon, say, loss of *p*, $^{**}tr_emt_el$).

If some of the clustering consonants are laryngeals the last-mentioned contingency arises or may at least arise, since "before vowels" the laryngeals are said to be lost (except, of course, in the case of the voiceless aspirates of Indo-Iranian). It seems indeed that non-phonemic $_e$ is, for the purposes of this rule, a "vowel".

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[19] Burrow, *Sanskrit language*, 116.

[20] Kuryłowicz, *Études indoeuropéennes*, 34 f.

[21] See *Lg*. 29.288 ff. (1953).

No complete case can of course be assembled with Indo-Iranian evidence alone. But Indo-Iranian contributes phenomena such as these.

(1) Zero grade forms of the roots *dā-* (both 'give' and 'cut') and *dhā-* 'put' "lose their shwa" not only before a vowel (where the loss is regular) but also, in some evidently archaic forms, before a consonant. Thus we have *deva-tta- pra-tta- ava-tta-*; *bhaga-tti- magha-tti- pra-tti-*, etc. It has always seemed likely that special conditions of compounding are responsible. This is probably true, and it can be formulated more accurately by reconstructing $_eH$ for the forms in which ə (I-I *i*) is present, and H_e for the failing ə, with loss of the laryngeal before a "vowel" – including the automatic $_e$ which is postulated after any two consonants and before a consonant. The usual (phonemic rather than phonetic) formulation would be to say that laryngeals are lost (aside from the instances treated in the earlier sections) (1) before full-grade vowel, and (2) after *VC* and before *C*, which is where we should expect H_e if *H* behaves like other consonants. This accounts for *deva-tta-* and the other examples given above. An example like *ā-tta* then represents an analogical extension – an interpretation which is mildly encouraged by the chronology of the forms as suggested in Wackernagel's Grammar.[22] It must be remembered that syllabic semivowels in the preceding syllable are ambiguous: *u*, for instance, is a short vowel, but its effect on its surroundings might have been different according to whether it represents CC_ew or VCw_e: in the former case we may expect CC_ew-d_eHti-, in the latter, VCw_e-dH_eti. Wackernagel quotes the expected *vasudhiti-* from *dhā-*, but *vasutti* from *dā-*. The natural breeding ground for analogical extensions must be sought in the many instances in which the determining factor is located across a word boundary in the preceding word: just so the original distribution of ρα and αρ in Greek cannot be recognized in first syllables (which in some cases do present doublet forms of the type καρδία: κραδίη). For this reason, *dadmas dadhmas* (as presents, contrasting with the perfects *dadima dadhima*) are less telling than they might seem at first if it is remembered that these forms in all probability replace an older pair **didmas *didhmas*, with $d_ey > di$ after consonant final, but $dy_e > di$ after short vowel final. In any event, the general trend of normalization (to which the perfects were more exposed than the [unique] presents) has been, in Sanskrit, in the direction of generalizing the $i < {}_eH$ (i.e., the post-heavy-syllable) variant.[23]

In Iranian, "loss of shwa" is more common – so much so in fact that some scholars have set up a sound law, valid in other neighboring IE languages as well, under which shwa in medial syllables is regularly lost. For Iranian this is hardly correct: Bartholomae cites Avestan *iš*-aorists and other forms.[24] And on the other side of the ledger there is *tā* (< *pt*-) as a Gathic by-form of *pitar* 'father' which shows that the phenomenon is not limited to the interior of the word. It is more probable that the analogies which created a semblance of regularity were different from, and, in part, opposite to those which operated in Indic, where T. Burrow (who, to be sure, starts from different premises) has traced them in some detail.[25]

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[22] *Altindische Grammatik*, I, 81 ff. The point has been often discussed; see Polomé, *Revue belge* 30, 454.

[23] Leumann, *Med. k. Ned. Ak. v. Wetensch., Lett.*, NR 15:3, 99; 116–9.

(2) Under very much the same conditions as the so-called loss of shwa we also find shortening of zero-grade long semi-vowels (*u* for *ū*, etc.).[26] The same factor may be suspected at work. If *bhūto*- (Skt. *bhūta*-) is phonemically *bhwHto*- as is generally agreed, two phonetic variants might be suspected: bh_ewH_eto- after a consonant final in the preceding word, bhw_eHto- after a short vowel final. It would not be surprising to find the latter represented as *ū* in the historical languages (including Indo-Iranian): w_e yields *u* normally, and the syllable-final laryngeal acts as a lengthener, as usual. By the same token, $_ewH_e$ ought to yield *u*: first *H* disappears before $_e$ (as in -*tta* < -dH_eto-), then the second $_e$ itself, still only an automatic feature, vanishes automatically, and bh_ewto- > *bhuto*- is all that remains. It is perhaps uncomfortable that this time it is the post-light variant (*bhūto*-) which in the end shows greater staying power in the analogic leveling process. On merely general principles one does not know which to expect. The fact that pause (and such open junctures as must have also existed in the flow of speech) seems at one time to have functioned like a consonant ought to favor the post-heavy variants. In the later history of Sanskrit, on the other hand, the post-light variants are typically favored (*dv*-, *tr*-, etc.) when it comes to leveling. It is conceivable that a study of the Vedic examples might bring to light part of the conditioning which has here merely been inferred.

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[24] *Grundriss* 1.1.28, with literature. I am much obliged to G. Cardona (*Lg*. 37.422 [1961]) for pointing out errors in the preliminary version of this paper (p. 25), for summarizing the data, and for referring to Kuiper, *Notes on Vedic noun-inflexion*, 21–25. Meillet's view of the "loss of ə" needs a full review.

[25] *TPS* 1949, 22 f.; *Sanskrit language*, 104 ff. With Av. *tā* cf. OCS *stryi* 'paterned uncle'.

[26] Wackernagel, *Altindische Grammatik* I, 93 ff.

ARMENIAN EVIDENCE

WERNER WINTER

0. Armenian materials relevant for the development of the laryngeal theory have been treated in some detail in a few special studies:

W. M. Austin, "Is Armenian an Anatolian language?", *Language* 18.1942.22–25 (resumé in E. H. Sturtevant, *The Indo-Hittite laryngeals* 29–30; a critique in an article by J. A. Kerns and B. Schwartz, *Language* 18.1942.226–228).

E. Polomé, "Réflexes de laryngales en arménien", *Annuaire de l'Institut de Philologie et d'Histoire Orientales et Slaves* 10.1950.539–569 (=*Mélanges Henri Grégoire*, II).

R. Minshall, " 'Initial' Indo-European */y/ in Armenian", *Language* 31.1955.499–503.

Austin's special interest, the identification of Armenian as a survivor of a separate Anatolian branch of 'Indo-Hittite', need not concern us here; none of the arguments presented seems convincing since none of the agreements cited can be demonstrated to be due to common innovation (it is noteworthy that Sturtevant withdrew his support for Austin's views that was expressed in *IHL* in a later comment in his *Comparative grammar of the Hittite language*^{2} 8 fn. 24). For our purposes, the chief merit of Austin's paper lies in the collection of forms which point to a preservation of at least one laryngeal in prevocalic initial position as Arm. *h-*.

Polomé expands on Austin's findings. He notes that an *h-* reflex is found only before old full-grade vowel, whereas in the weak grade Arm. *a-* (and *e-*) occurs. He studies extensively the question of developments from **Xw-* and presents what he considers evidence for different reflexes of voiceless laryngeal plus **w* on the one hand and voiced laryngeal plus **w* on the other.

Minshall studies the problem of possible developments from **Xy-* clusters. As is so often the case in work in Armenian, his data are scant, and his conclusions remain in doubt.

The following is an attempt to recapitulate in a systematic fashion those earlier findings that seem acceptable, and to proceed to a discussion of some remaining problems.

1. *Reflexes of laryngeals in peak position* (**X̥*)

1.1. In initial position, **X̥* is reflexted by (a) *a-*, (b) *e-* or developments from **e-*:
(a) *astl* 'star' : Gk. ἀστήρ, Lat. *stēlla*

arew 'sun' : Skt. *raviḥ*
ateam 'I hate' : Lat. *ōdī*
amis 'month' : Lat. *mēnsis*

(b) *erek, erekoy* 'evening' : Goth. *riqis* 'darkness', Gk. ἔρεβος 'darkness of the lower world'
anun 'name' : Gk. ὄνομα, Toch. B *ñem*
atamn 'tooth' : Gk. ὀδούς
im 'of me', *inj* 'to me', *is* 'me' : Gk. ἐμέ, Hitt. *ammuk*
inn 'nine' : Gk. ἐννέα, Goth. *niun*

amis shows no agreement with Greek in the occurrence of a 'prothetic vowel' (cf. Ion. μείς); it is to be noted that *amis* can be considered part of a semantic set of calendar units (*awr* 'day', *amis* 'month', *am* 'year'), all of which begin with an *a*-, and that, in the older meaning to be postulated, '*moon', it stands beside *arew* 'sun' and *astl* 'star', again items with an initial *a*-: it therefore appears to be possible that *a*- in *amis* resulted from analogical transfer. – For a discussion of the initial of the Proto-Indo-European word for 'name' see this volume p. 202 f. *a*- instead of **e*- is interpreted as due to umlaut (cf. A. Meillet, *Esquisse d'une grammaire comparée de l'arménien classique*^{2} 55); the same applies to the *a*- of *atamn*. The latter form is interesting in several other respects: -*a*- can hardly be anything but an epenthetic vowel, which means that the nominal form is derived from the athematic verb stem as found in BSl. **ēdmi* and Hitt. *edmi*; the *-*mōn* suffix instead of the -*nt* suffix of other Indo-European languages (note here Meillet's explanation of the Armenian -*un* suffix, *Esq.*, 48, 130) may be equated with the deverbative *-*mōn* suffix found in Tocharian (cf. B *cämpamo* 'able', *pälkamo* 'shining'). – Before nasal, **e* became *i* in Armenian; before spirant, a nasal was lost: it is therefore possible to include *im*, *inj*, and *is* under (b). – It seems that the form to be reconstructed for the numeral 'nine' in Proto-Indo-European is **Enewn̥*; O. Szemerényi's arguments in favor of final *-*m̥* (*Studies in the Indo-European system of numerals* 171–173) do not appear weighty enough. **Enewn̥* should have been reflected by Armenian **inowan* (for *-*ew*- > *-*ow*- cf. *nor* 'new'; for *-*an* as a development from sonantic nasal note the *a* umlaut in *tasn* 'ten') at a time prior to the syncopation of *i* and *u* (a fairly recent development). *-*an* was reduced to -*n* (cf. again *tasn*), which led to **inown*. In position before consonant, *-*ow*- of whatever origin became -*u*- (cf. *k'un* 'sleep' < **swopno*-), and secondary syncope of this -*u*- (possibly under the influence of *tasn* 'ten') resulted in the attested form *inn*.

1.2. In interior position, one expects to find the same reflexes of **X̥* as in initial position. Examples of -*a*- are:

hayr 'father' : Gk. πατήρ, Skt. *pitā́*
bay 'verb' : Gk. φάσις 'statement'
arari 'I made' : Gk. ἤραρον 'I put together'
tam 'I give' : Gk. δίδομεν 'we give'
keam 'I live' : Gk. βίοτος 'life'
arawr 'plough' : Gk. ἄροτρον

In the preliminary version of this chapter, I proposed to find the reflex *-*e*- in

dnem 'I place' : Gk. τίθεμεν 'we place'.

[dən-] would be the regular development from unstressed **din*-, and this in turn could be derived from **den*-. However, in view of OCSl. *stanǫ* the possibility cannot be ruled out that Arm. **dinem* represents PIE *dheEne*- rather than a form with zero grade of the root; note here Meillet's remarks *Esq.*, 132. Moreover, there are a number of Armenian forms in which the reflex of **X̥* is neither -*a*- nor -*e*-, which makes the reconstruction of an -*e*- reflex in *dnem* rather unlikely; of particular relevance is

anjn 'person, mind, self' : Gk. ἄνεμος, Toch. B *āñme*.

Morphological details remain unclear (what is the source of -*j*-?); for our present purposes it suffices to note that **Ę* is not represented by a vocalic reflex. Possibly related cases will be treated below in 3.2.4.

2. *Reflexes of laryngeals in pre-peak position*

2.1. In initial position, a laryngeal is either (a) not reflected at all, or (b) it is represented by *h*-:

(a) *em* 'I am' : Hitt. *esmi*, Gk. εἰμί
es 'I' : Gk. ἐγώ, Skt. *ahám*
*ut*ʻ 'eight' : Gk. ὀκτώ
ost 'branch' : Hitt. *hasdwir*, Gk. ὄζος, Goth. *asts*
oskr 'bone' : Hitt. *hastāi*, Gk. ὀστέον
arǰ 'bear' : Hitt. *hartaggas*, Gk. ἄρκτος

(b) *haw* 'bird' : Lat. *auis*, Skt. *viḥ*
haw 'grandfather' : Hitt. *huhhas*, Lat. *auus*
han 'grandmother' : Hitt. *hannas*; Lat. *anus* 'old woman'
hoviw 'shepherd' : HLuw. *hawas*, Lat. *ouis* 'sheep'
hogi 'wind, spirit' (*hov* 'wind', *hovem* 'let air in') : Hitt. *huwanza*, Lat. *uentus* 'wind'
hot 'smell' : Lat. *odor*
hum 'raw' : Gk. ὠμός

Austin and Polomé propose to view Arm. *h*- as the reflex of only one of Sturtevant's four laryngeals, viz., of **x*-. If that should be an acceptable assumption (and I must say that I find it somewhat difficult to posit -*o*- grade for the forms of the word for 'sheep'), we have to realize that in view of the apparent instability of *h*- in Armenian (cf. A. V. Jerejian, *Word* 9.1953.146–151) absence of *h*- cannot be taken as a positive indication of Sturtevant's second *a*-coloring laryngeal. This is made obvious by such pairing as

*arcat*ʻ 'silver' : Hitt. *harkis* 'white', Lat. *argentum* 'silver'.

The fact of conflicting agreements Arm. *ha*- : Hitt. *ha*- (which includes Hitt. *huhhas* with monophthongization of an old diphthong in **hauhhas* as in *uhhi* 'I see' from **auhhi*) and Arm. *a*- : Hitt. *ha*- leads us to consider the possibility that the contrast between Arm. *ho*- : Luw. *ha*- and Arm. *o*-: Hitt. *ha*- may be of the same nature, that is, that here too only one Proto-Indo-European laryngeal (**O*) may be involved. If that is correct, we have to conclude that an identification of Arm. *ho-* with **Ao-* can be made only when *a*-color of the laryngeal is attested in Greek; this applies to Arm. *hogi, hov, hovem* : Gk. ἄημι, while the argument from Latin forms for *hum* and *hoviw* (Polomé 539 fn. 2) does not seem to be compelling.

2.2. Reflexes of laryngeals forming part of clusters in pre-peak position will be discussed in section 4.

3. *Reflexes of laryngeals in post-peak position*

3.1. No trace of a discrete laryngeal reflex in position after the Armenian developments from PIE *e* and *o* has been found. Old *eE* and old *ē* of the lengthened grade are both reflected by Arm. *i*, cf. *dir* 'position, state' : *sirt* 'heart'; likewise, **eO* (**oO*) and **ō* both are represented by Arm. *u*, cf. *etu* 'I gave', *tur* 'gift' : *anurǰ* 'dream'. **eA* is reflected by Arm. *a*, cf. *ełbayr* 'brother', *lam* 'I weep'.

3.2. In position after developments from Proto-Indo-European sonantic resonants and semivowels, special reflexes of laryngeals can be noted.

3.2.1. It seems that the equation

canawtʻ 'known' : Gk. γνωτός

is fully valid. This entails a derivation of *canawtʻ* from **ǵn̥Oto-*. We observe a disyllabic reflex of the "long sonantic nasal" comparable to that found in numerous Greek forms which have been the subject of many, and apparently still inconclusive, discussions. A general observation may be in order:

If we admit the possibility that at least under certain conditions a "long sonantic resonant" was reflected by a disyllabic configuration in Greek (γένεσις), Armenian (*canawtʻ*), and Hittite (*daluki-*), we find that this development occurs precisely in those languages that have 'prothetic vowels' : Gk. ἐμέ: Arm. *is* : Hitt. *ammuk*; Gk. ἐύς: Hitt. *assus*. It seems possible to suggest that in these languages vocalization rules prevailed different from those found in other Indo-European languages; details remain to be determined.

In contrast to Greek, Armenian shows more than just a vowel after the resonant: we have here a sequence *-aw-*. The possibility exists that *-a-* could be an epenthetic vowel (cf. *-a-* in *atamn* 'tooth'), and that *-w-* would have to be considered as the immediate reflex of the laryngeal of the parent form. To find an answer to this problem, we study some other forms that seem to contain a laryngeal reflex.

It seems possible to establish a connection between Arm. *aławtʻkʻ* 'prayer' and Lat. *plōro* (and in particular *implōro*). Semantically, no difficulty exists. The Latin form has not been aligned satisfactorily with other Indo-European material (cf. Walde-Hofmann, *Lateinisches etymologisches Wörterbuch*^{3} 2.323–324; Ernout-Meillet, *Dictionnaire étymologique de la langue latine*^{3} 913); the Armenian word can be derived from **pl̥Oti-*, and the Latin verb can be viewed as an *-s-* present (**pleO-s-*).

The Armenian verb *niwtʻem* 'spin, twist, weave' can be interpreted as a denominative formation from **niwtʻ*. This noun would be derived from **(s)niEti-*, *-ti-* abstract from the Proto-Indo-European base* *(s)neEy-*; the closest correspondences to Arm. **niwtʻ* would be Lith. *nýtis* 'a tool used in weaving' and Russ. *nitь*' 'thread' as well as, with a different ablaut grade, Gk. νῆσις 'act of spinning' (for more related material cf. Walde-Pokorny 2.694–695 and Pokorny, *Indogermanisches etymologisches Wörterbuch* 973 with literature).

Much less certain is the connection between Arm. *hiwtʻ* 'moisture' and forms such as Lat. *pītuīta* (WP 2.73–75, Pok. 793–794), although an analysis of *hiwtʻ* as **piXto-* seems possible.

3.2.2. All forms with *-w-* suspected to be a laryngeal reflex show this *-w-* in position before a consonant. *-w-* before consonant is also the regular development from a Proto-Armenian voiceless spirant reflecting Proto-Indo-European voiceless stop (cf. *Language* 31.1955.5, 7). One of the reflexes of Proto-Armenian voiceless spirants in other positions is an initial *h-*: again we note an agreement with the reflex of one or more laryngeals (cf. above 2.1.).

Verb forms associated with *canawtʻ* and *aławtʻkʻ* are *čanač̣em* 'I know' and *ałač̣em* 'I implore'. Arm. *č̣* reflects the Proto-Indo-European sequence *k^wy in the old dual form *ač̣kʻ* 'eyes' (: Gk. ὄσσε, Toch. B *eś*; cf. this volume p. 201). If it should be possible to consider *čanač̣em* and *ałač̣em* *-ye/yo-* presents, we would encounter in these forms a further parallelism between the developments from Proto-Indo-European laryngeals and the developments from Proto-Indo-European voiceless stops, in particular here from PIE k/k^w. For further comments see below 4.3.

The singular of *ač̣kʻ* is *akn* 'eye'. This form must have been derived from older **akʻ* by means of a singulative suffix *-n*. The same sequence *-kn* is found in a few words in which **-kʻ-* cannot possibly be derived from an old velar or labiovelar stop. Particularily transparent are

mukn 'mouse' : Gk. μῦς, Lat. *mūs*
jukn 'fish' : Gk. ἰχθῦς, OPruss. *suckans.*

If these forms did contain, as is frequently assumed, a Proto-Indo-European *-k-* suffix, one would have to expect in Armenian not a *-k-* or a **-kʻ-*, but an *-s-*, since after *-u-* and *-w-* the reflexes of Proto-Indo-European velars and labiovelars were replaced by the reflexes of Proto-Indo-European palatals (cf. Meillet, *Esq.* 37; good examples are *loys* 'light' : Skt. *rokás*, *usanim* 'I learn' : OCSl. *ukъ* 'doctrine', *dustr* 'daughter' : Lith. *duktė̃* [see below, 4.2.3]).

As the *-k-* of *jukn* cannot be derived from PIE k/k^w (nor, for that matter, from PIE g/g^w), it seems impossible not to connect it with the Proto-Indo-European laryngeal reflected by the vowel length of Gr. ἰχθῦς. In the case of *akn*, *-k-* was derived from **-kʻ*; likewise, we will want to consider alongside *jukn* and *mukn* a number of items with final *-kʻ*:

šukʻ 'shade' : OHG *scuwo*, OIcel. *skuggi*
tʻukʻ 'saliva' : Skt. *ṣṭhyūtáḥ* 'spit', Lith. *spiáuti* 'to spit'
pʻukʻkʻ 'bellows' : Gk. φῦσα

In all these forms, PIE *ū* (**uX*) is found reflected outside Armenian. Again it proves impossible to derive Arm. *-kʿ* from a Proto-Indo-European velar or labiovelar, and again we see no way but to connect Arm. *-kʿ* with a laryngeal. The question arises whether we can determine the precise conditions under which *-kʿ* developed.

Here the form *mukn* takes on special importance: we know that the Proto-Indo-European term for 'mouse' is to be reconstructed with a final *-s* of the stem (cf. Lat. *mūs*, *mūris*). It seems unlikely that *-kʿ* should reflect **-Xs-* of the oblique cases: if so, we would be left without an explanation for *jukn*, *šukʿ*, *tʿukʿ*, *pʿukʿkʿ*. However, if we assume that *-kʿ* developed as a laryngeal reflex in secondary final position, that is, if no vowel followed and a following consonant was lost, then *mukn*, *jukn*, *šukʿ*, etc., can be considered regular developments from old nominative forms **muXs*, *( )*ǵhuXs*, **skuXs*, etc.

At this point we are prepared to consider again an equation proposed in *Language* 31.1955.8 and since criticized by H. W. Bailey in *AION* (L) 1.1959.120 with fn. 2. I had proposed to equate

kʿałakʿ 'city' : Gk. πτόλις, Skt. *pūr*.

The initial *kʿ-* of Armenian and πτ- of Greek I derived from **pw*, and the sequence *-ała-* of *kʿałakʿ* matches the *-ała-* of *ławtʿkʿ* 'prayer' discussed in 3.2.1. Finally in the light of *mukn*, *šukʿ*, etc., *-kʿ* is taken to reflect **-X* plus final *-s* of the nominative singular. The complete formula for the word for 'city' then would be **pwl̥X-s*, with an internal structure matching other items with stem-final laryngeal, such as **swX-s* 'hog', etc. In passing, the question may be raised whether Gk. Πύλος, with the expected vocalization of the sequence **pwl(X)-*, is not simply the City par excellence, and whether the semantic relationship of Gk. πύλαι to Πύλος and πτόλις is not a close match to that of Russ. *dver'* 'door' to *dvor* 'courtyard'. Obviously the difficult problem of how to assess the vocalism of Gk. πτόλις cannot be treated here.

Bailey's derivation of *kʿałakʿ* from Iranian suffers from a basic weakness: Throughout the dialects, the meaning of the Iranian forms adduced is 'house, fortress' (except for a lone *kəlai* in Pashto); Bailey therefore has to assume extension of the meaning to 'town' after the word was borrowed into Armenian and thence into Georgian and Ossetic. Since, in spite of the seeming oddity of the native etymology proposed here, there is no semantic change and no unsupported sound change to be postulated in the approach taken in this paper, I feel that the equation offered here for *kʿałakʿ* should not be eliminated.

3.2.3. We have seen that there is far-reaching agreement between the developments from PIE k/k^w and one or more laryngeals in non-peak position: Before vowel, we find *h-* reflecting both *k/k^w- (and other stops) and **A-* as well as possibly **O-*. While after vowel there is no such agreement (which serves to support the view that coalescence with preceding vowels antedates loss of laryngeals in other positions), we find it again following semivowels and resonants; in particular, the development of *-w-* both from *k/k^w and **X* is striking.

In at least one instance, we find *-a-* and not *-aw-* after the reflex of a sonantic resonant: Arm. _erastankʿ_ 'buttocks' is to be compared with Gk. πρωκτός. It seems that here the consonantal reflex of a laryngeal did not survive because a sequence *_-wst-_ would have violated an important phonotactic rule of Armenian, viz., that the maximum complexity of consonant clusters in intervocalic position is _-CC-_.

After _u_, a preconsonantal *_w_ did not survive either: the reflex of PIE _puAr_ 'fire' is Arm. _hur_ (for further details see this volume p. 192–193).

3.2.4. A loss of the reflex of a laryngeal is to be noted also in a few forms where it is not easy to decide whether we are dealing with now unreflected laryngeals in peak or in post-peak position.

anjn 'person, mind' has been mentioned in 1.2. Closely parallel forms are
-and 'threshold' : Skt. _ā́tā_ 'door frame', Lat. _antae_ 'door posts'
armukn 'arm' : Skt. _īrmā́ḥ_ 'forequarter' (of an animal).

In all three instances (including _anjn_), it seems impossible at this point to decide with certainty whether to analyze these forms as reflecting *_AeRX-_ or *_AR̥X-_, that is, whether sonantic or nonsonantic resonant is to be posited.

It appears useful to point out that in the case of _anjn_ an *_E_ seems to be involved, and that therefore the unreflected laryngeal of _-and_ and _armukn_ may also be an *_-E-_; however, this assumption can neither be proved nor disproved by extra-Armenian data.

Finally, the question as to when the loss of a laryngeal reflex as discussed here has to be left undecided; some comments will be found in 4.2.3.

4. In the course of our argument reflexes of laryngeals adjacent to other consonants have been discussed in 3.2.1 (*_XC_ > _wC_) and 3.2.2 (_Xy_ > _č̣_). We shall now study developments from other clusters involving a laryngeal.

4.1. Proto-Indo-European voiceless stop (and *_s_) plus _-w-_ is represented in Armenian by _kʿ-_. In view of the parallelism hitherto observed between reflexes of voiceless stops (and specifically of *_k_/_k_^{w}) and reflexes of laryngeals it would seem a promising working hypothesis to expect that *_Xw-_ might also be represented by _kʿ-_.

Although he does not use this reasoning, Polomé arrives at precisely the above result. Unfortunately, none of his proposed equations can really be called fully satisfactory: _kʿandem_ 'I destroy' and _kʿami_ 'wind' would, if correctly analyzed, not share more than a common *_Xw-_ with their extra-Armenian correspondences, and the semantic basis for juxtaposing _kʿałakʿ_ 'city' : Gk. αὐλή 'courtyard' and _kʿar_ 'rock' : OIcel. _aurr_ 'gravel' is most tenuous. Instead, two other equations appear to stand a much better chance of being tenable:
kʿakem 'I untie, break' : Gk. ἄγνυμι, Toch. B _wāk(s)-_
kʿsan 'twenty' : Gk. εἴκοσι/ϝικατι, Lat. _uīgintī_.

The last of these two Armenian forms has been explained as showing assimilation from *_gsan_, the expected development from IE _wīk̑n̥tī_ (cf. Meillet, _Esq._, 40). However, it must not be overlooked that inasmuch as _kʿsan_ is merely a graphic rendering of [kʿəsán] the case for assimilation is not as strong as it might appear on first sight, the less so since in other forms a sequence voiced stop + ə + voiceless consonant can be shown to have been preserved: note *dstikʻon* 'storey', *dpir* 'scribe'. The likelihood that *kʻ*- in *kʻsan* does indeed reflect PIE *Xw*- is therefore quite great.

4.1.1. The laryngeal to be reconstructed on the basis of Sturtevant's assumptions (cf. *IHL* 86–87) for Gk. εἴκοσι (and ἄγνυμι) would be a voiced one. Yet for a cluster of Proto-Indo-European voiced laryngeal plus *w*, Polomé wants to claim a development Arm. *g*; while earlier scholars took both Arm. *g* and Arm. *v* (*w*) to reflect PIE *w*, Polomé proposes to recognize only the latter as a development from 'plain' PIE *w*. Obviously, *kʻ*- in *kʻsan* cannot be from voiced laryngeal plus *w* if Polomé is correct in his assumptions.

Two questions arise here: One, how valid is Polomé's derivation of *g*- from voiced laryngeal plus *w*? Two, how valid is Sturtevant's characterization of the initial laryngeal in the word for 'twenty' as a voiced one?

Polomé does not take due notice of an essential difficulty confronting his theory: Alternation between -*v* (-*w*) and -*g*- is found in a number of closely related Armenian items, e.g., in *hov* 'wind' : *hogi* 'spirit', *kov* 'cow' : *kogi* 'butter', *arew* 'sun' : *aregakṇ* 'sun'. We cannot once claim, once disclaim the presence of a laryngeal in the protoforms of these Armenian words. Actually, we have comparative evidence that one of the forms with -*g*- cannot possibly be derived from an earlier form with laryngeal: *kogi* is to be equated with Skt. *gavya*-, not **gāviya*-. In order to be able to treat the Armenian developments *g* and *v* (*w*) in a uniform fashion, we have to assume that the alternation was conditioned by a still undetermined factor within Armenian itself; it may be suggested that -*v* (-*w*) developed in preconsonantal position (as, e.g., in the nominative of consonant stems; cf. the argument in 3.2.2) and spread at the expense of the prevocalic variant *g*.

In the chapter on Tocharian (pp. 193–197), arguments are presented to confirm *o*-coloring as a basic property of the Proto-Indo-European laryngeal reflected by single -*h*- in Hittite. If this approach is warranted, we have to recognize that distinctive voicedness is attested only for the *o*-coloring laryngeal – by the graphic evidence of Hittite on the one hand, and by the evidence of voicing of preceding voiceless stops in a number of cases (Skt. *píbati*, Lat. *bibō*, OIr. *ibid*; Gk. ὄγδοος) on the other. We have no way of confirming distinctive voice for the neutral ('*e*-coloring') laryngeal on the basis of graphic evidence; as far as is known, no case of voicing of a voiceless stop can be ascribed to the influence of this laryngeal.

However, it seems that the question of original voicedness or voicelessness of certain laryngeals is of little immediate importance for our investigation of Armenian forms: We have seen that the reflex of voiceless *a*-coloring laryngeal as found in *haw* 'bird', *haw* 'grandfather', *han* 'grandmother' is identical with one reflex of PIE *k*-/*k*^{w}-; but we have also seen that the preconsonantal reflex of voiced *o*-coloring laryngeal in *canawtʻ* and *aławtʻkʻ* is the same as the preconsonantal reflex of **k*/*k*^{w} as found in *mawrukʻ* 'beard'. It seems that the distinction between voiced and voiceless laryngeals disappeared at some still undetermined point in the prehistory of Armenian.

If **Xw-* resulted in Arm. *k*‘- regardless of the voice properties of the laryngeal involved, an explanation is required for items like *gelum* ‘I twist’ : Gk. εἰλύω. If, as is indicated by forms like *kogi*, *g* is the prevocalic reflex of an internal *w* not preceded by a laryngeal, it seems reasonable to suggest that forms with *g-* do not reflect **Xw-* at all, but that we had better reckon with the possibility of a pre-Armenian loss of laryngeal through sandhi developments.

With one exception, all forms that one could list as showing Arm. *g* from PIE *Xw* contain this *g* in initial position. The exception is *loganam* ‘I wash’ : Hitt. *lahhuwāi* ‘he pours’. Considerable difficulties continue to exist here: If the Hittite spelling with *-hh-* is given full weight (and it does seem to be the normal spelling before vocalic *-u-*), we have little choice but to derive the Hittite verb from a Proto-Indo-European base **leAw-*. On the other hand, the Mycenaean forms *rewoterejo* and *rewotorokowo* seem to point, in the final analysis, to PIE *lewO-*. Thus possibly those scholars that have remained skeptical about the connection of the Hittite term for ‘pour’ with the term for ‘wash’ in Greek, etc. (note J. Friedrich’s reluctance as indicated in his *Wörterbuch* s.v.) may after all be right. Arm. *log-* could well be an exact match for early Gk. *lew-* as found in the Mycenaean forms (for Arm. *ow* from PIE *ew* cf. the remarks concerning *inn* and *nor* in 1.1); in that case, *loganam* need not be considered for a study of the reflexes of **Xw* in Armenian. However, much remains uncertain here; for a different approach to the problems posed by *loganam* see footnote 9 (page 37) of the preliminary version of this chapter.

4.2. Sturtevant (*IHL* 86) comes to the conclusion that the peculiar contrast between Gk. ἐγώ and Skt. *ahám*, Gk. θυγάτηρ and Skt. *duhitā́*, Gk. μέγα and Skt. *máhi*, Gk. γένυς and Skt. *hánuḥ* (and possibly Gk. ἀγοστός and Skt. *hástaḥ*) is due to different developments of a cluster consisting of **ǵ* and voiced laryngeal in the two Indo-European languages. Along with others, H. M. Hoenigswald (this volume p. 95) accepts this view in full.

A minor remark may be attached right here: Contrary to Hoenigswald’s statement, the development of voiced aspirates instead of voiced nonaspirates can safely be considered an Indo-Iranian, not a specifically Indic, phenomenon: the Iranian forms of the word for ‘daughter’ show the effects of Bartholomae’s law.

4.2.1. It seems necessary to study in some detail the question what kind of laryngeal could have been involved in the developments listed in 4.2.

One characteristic is immediately obvious: Since no devoicing of the voiced consonant can be observed, the laryngeal in question cannot have been distinctively voiceless. This leaves us with two possibilities: Either the laryngeal was distinctively voiced, or its voice (or voicelessness) was nondistinctive so that it did not affect the voicedness of a preceding consonant.

We know the effects of a distinctively voiced laryngeal from the voicing of a voiceless stop found in such forms as Skt. *píbati*. We notice that voicing here is not accompanied by aspiration. Since the voiced laryngeal of Hittite (in *mehur*, etc.) appears to be characterized by both voice and aspiration (or spirantness), we would assume that an assimilation of *p to this laryngeal would have led to a merger with *bh if the Indo-European "media aspirata" at the time of this development had been distinctively voiced (or even phonetically voiced). This, however, does not seem to have been the case (note the argument presented by J. Kuryłowicz in *Innsbrucker Beiträge zur Sprachwissenschaft*, Sonderheft 15, p. 107–108); a phonetically voiced and aspirated [bh] resulting from the assimilation of *p to a voiced laryngeal could therefore fall in with an existing phoneme only with a concurrent loss of one distinctive feature. This feature happened to be the aspiration.

A priori we would assume that in view of the previously discussed material a combination of voiced stop with voiced laryngeal should result in a voiced, unaspirated stop or its reflex throughout the Indo-European languages. A different result would appear possible only after the development of voiced, aspirated stops as phonemic units. The development of **dh*, etc., with the distinctive features of voice and aspiration combined was a special Indo-Iranian development. We can, therefore, hardly escape the conclusion that after voiced stop a (distinctively or nondistinctively) voiced laryngeal was preserved longer as a separate entity than after voiceless stop. Why that should have been so, seems impossible to determine; we note only that apparently an exactly parallel situation existed in the case of the combination of voiceless stop with voiceless laryngeal: here, too, we notice a merger of the reflex of **tA* with a *th* of different origin in Indo-Iranian.

If, as seems warranted after the reexamination of the Hittite material offered in the chapter on Tocharian (pp. 196-197), *o*-coloring can be considered a characteristic concomitant of the laryngeal reflected by Hittite single *-h-*, a form like Gk. γένυς offers insurmountable difficulties to a derivation from **ǵOenus* (as suggested by Skt. *hánuḥ*) because of its *-e-* vocalism. As a development of Skt. *h-* would also seem possible from a combination of **ǵ-* with a laryngeal with nondistinctive voice, and since the neutral ('*e*-coloring') laryngeal gives no evidence of being either distinctively voiced or voiceless, an analysis of the forms cited as **ǵEenus* would seem to offer an acceptable solution. However, a serious difficulty prevents us from following this avenue too readily: the evidence of Hittite (and, for whatever its worth, of Armenian) does not give us grounds to claim aspiration (or spirantness) as a characteristic feature of **E-*; wherever we can safely posit an **E*, we never find it matched by an *h* in the attested languages.

If we want to maintain an analysis **ǵOenus* for Skt. *hánuḥ*, while at the same time claiming *o*-coloring as an obligatory concomitant of **O*, we obviously are under an obligation to explain the vocalism of Gk. γένυς.

Among the Indo-European words for 'chin, jawbone, cheek' we find forms with distinctly different bases: on the one hand, Skt. *hánuḥ* which points to **ǵXen-*, on the other, Lith. *žándas* to be derived from **ǵenX-*. In spite of difficulties in details, Gk. γνάθος and γναθμός, 'Macedonian' κάναδοι, and Arm. *cnawt* can be aligned with the Lithuanian form. For Gk. γένυς, Lat. *gena*, Goth. *kinnus*, OIr. *giun*, an assignment to either one of the bases would be possible. For Toch. A *śanweṃ*, however, it seems necessary to proceed from **ǵēn-*, i.e., **ǵeXn-*. This leaves us with three possible bases, **ǵXen-*, **ǵeXn-*, and **ǵenX-*, of which only the last is well supported beyond the reach of one language. The question arises immediately whether the first two bases can be derived from the last. The answer is in the affirmative: If the observations concerning metathesis of laryngeal in the zero grade (cf. this volume p. 192) apply to all combinations of resonant and semivowel with laryngeal, **ǵnX-* would be the preconsonantal zero grade form of all three bases listed. What we find in Sanskrit and in Tocharian would then be wrong restitutions of a full grade based exclusively on the zero-grade form. Gk. γένυς, then, need not be derived from **ǵXenus*, but can be **ǵenXus*, in which case the *-e*-vocalism of the attested Greek form could not be used as an argument against positing **O* as the laryngeal involved.

Much more troublesome is the Tocharian evidence. In view of A *śäṃ* 'wife', a derivation of the *-a-* of *śanweṃ* from short **e* seems precluded; lengthened grade seems impossible to justify. Palatalization eliminates an interpretation of *-a-* as **ō* or **ā*; thus, only **ē* is left, and this **ē* can only be derived from **eE*. Since the vocalic reflex of **E* remains distinct from that of **A* and **O* in Tocharian (cf. this volume p. 201), an Ablautsentgleisung introducing the wrong long vowel is particularily hard to understand. Thus the question arises again whether **E* rather than **O* should be posited for our group of forms in spite of the failure of **E* to turn up with *h-* reflexes.

We look for further evidence.

We have seen that in Armenian *-aw-* is found when a laryngeal occurred after a resonant in peak position (*canawtʿ*, *aławtʿkʿ*), but not when the laryngeal itself formed the peak of a syllable (*hayr*, *tam*). The Armenian term for 'jaw' is, as has been stated, *cnawt*. While the *-t* continues to be enigmatic, one will want to compare the Armenian form either with Gk. γνάθος or with Lith. *žándas*. *cnawt* could indeed be from **cunawt*, with *-o-* grade as in the Lithuanian form, but then we would have *-aw-* for laryngeal in peak position. However, could *-naw-* (or rather **-unaw-* or **-inaw-* which must be the immediate source of *-naw-*) be a reflex of **n̥X*?

-naw- recurs in another form of fairly clear origin, *cnawł* 'parent'. Rather than try to find here a **-tl-* noun, as proposed by Meillet (*Esq.*, 32, following a suggestion of S. Bugge), it is simplest to segment *cnawł* as *cnaw-* + *-ł*, participial suffix found, e.g., in *bero-ł* 'carrying'. *cnaw-* must be derived from a form of **ǵenE-*, and apparently it is most reasonable to assume that **cinaw-C-* (< **cenew-*?) represents a zero grade formation. If so, then *cnaw-* in *cnawt* most likely is to be interpreted in the same manner, and the combined evidence of Arm. *cnawt* and Toch. A *śanweṃ* points toward a base **ǵenE-* for 'jaw'.

Additional evidence comes from Greek. The derivative γένειον 'chin' is said to have full grade of the stem-final syllable (Frisk, *GEW* 1.298); rather than posit a form with two full-grade syllables, it seems simpler to take the second *-e-* as a reflex of **E* as in forms like γενετήρ: Skt. *janitā́*.

Conflicting testimony seems to come from Gk. γνάθος and γναθμός. Here, however, it remains to be said that the vocalization pattern **nX̥* rather than **n̥X* seems highly irregular, so that the forms certainly need further study.

The evidence that can be offered is obviously scant. Still, when we see that a certain derivative from **ǵenO-* (**ǵneO-*) shows the configuration *-anaw-* in Arm. *canawtʿ* and a certain derivative from **ǵenE-* the configuration *-naw-* in Arm. *cnawl*, then it seems better to posit for *cnawt* a base **ǵenE-* and not **ǵenO-*, the more so as Tocharian and Greek data seem to favor this solution.

Is there any support for our postulated **E* to be obtained from other forms of the group under discussion?

Beside μέγα we find in Greek a derived noun μέγεθος 'greatness'. E. Schwyzer (*Griechische Grammatik* 1.255) believes that this form resulted from vowel assimilation, so that μέγαθος (attested since Herodotus) would actually be the older form. The paradigm of μέγας seems to be based on the nominative-accusative neuter (cf. Hj. Frisk, *GEW* 2.190); is it really a satisfactory explanation to consider the *-a* of Greek the zero grade of the *-ā* found in Skt. *mahā-*: what proof is there that Skt. *-ā* is PIE *ā* (*eA*)? Could not Gk. -α, Skt. *-i* be a suffix rather than part of the stem, which would mean that a connection with collective **-A* would seem possible? One reason why such a suggestion should not be rejected outright is the peculiar fact that the Tocharian B word for 'much', when inflected, is treated as a plural (collective): *māka*, genitive *makāts*. If these forms are related to Gk. μέγα, etc., they assure the presence of the collective suffix at least for Tocharian; whether this is enough to postulate a protoform **meǵE-A* for Gk. μέγα has to be left open.

The strongest support for **O* as the conditioning factor for the Indo-Iranian aspiration derives from the fact that Lat. *ego*, Gk. ἐγώ appear to be in an ablaut relationship of the stem with Skt. *ahám* (cf. Hoenigswald p. 95). If this were certain, all arguments in favor of **E* would lose significance. However, a form like Latin *ego* can hardly be anything but more recent than the time when ablaut was a live phenomenon: a reconstructed form **EeǵeO*, with two full grades, has the appearance of a later development and can well owe its **-ō* to the same ending in verb forms (cf. Walde-Hofmann, *LEW*^{3} 1.395 for literature).

All points considered, we have to note that there is no conclusive evidence for **O* as the factor conditioning the Indo-Iranian aspiration. A number of arguments seem to let us favor positing **E* instead; again, however, the evidence is scant, and the fact that a laryngeal not rendered by *h-* in Anatolian (and Armenian) should have caused aspiration elsewhere remains perturbing.

4.2.2. The Armenian parallels to the forms listed at the beginning of 4.2 show a curious contrast: On the one hand, *mec* 'great' and *cnawt* 'jaw' contain the normal reflex of PIE *ǵ*. On the other, *es* 'I' and *dustr* 'daughter' show what would be the regular development from PIE *ḱ*; to these two forms, *asem* 'I say' (: Lat. *aiō*) can be added.

If our analysis of *cnawt* is correct, then the form underlying the Armenian word would not have had a laryngeal adjacent to **ǵ*; consequently no change due to a laryngeal could have been effected. As for *mec*, the possibility cannot be ruled out that the laryngeal was lost without a trace before a following vowel (witness the *-a-* stem of the instrumental *mecaw*), as seems to have happened to the reflex of **A* in *kałin* ‘acorn’: Gk. βάλανος.

For *es*, Meillet has proposed that *-s* in lieu of expected *-c* was due to the generalization of a preconsonantal variant (*Esq.*, 37, 57). In the case of *asem*, such an explanation is faced with greater difficulties, although the postulated athematic forms have a parallel in Gk. ἦ (cf. Meillet, *MSL* 7.164; M. Maksoudiantz, *MSL* 17.356); the expected *-c* is found in *aṙac* ‘proverb’ (the synonymous *aṙak* remains apart).

Since the explanations offered by Meillet for *es* and *asem* cannot be disproved, we have to conclude that there is no clear evidence for a special reflex of the cluster **ǵX* in Armenian.

4.2.3. No such evidence is provided by the word *dustr* ‘daughter’ either.

This form corresponds exactly, once the developments referred to in 3.2.2 are taken into account, to Av. *dugədar-*, OHG *tohtar*, Lith. *duktė̃*, that is, to forms without the reflex of vocalized laryngeal as found in Gk. θυγάτηρ, Skt. *duhitā́*, Toch. B *tkācer*. The absence of a laryngeal reflex in Armenian can be demonstrated to be a very old phenomenon:

In this word, Arm. *t* corresponds to PIE *t*. This happens only in one position: after Arm. *s*, regardless of whether it represents PIE *s* or PIE *ḱ* (cf. *astł* ‘star’ : *erastankʿ* ‘buttocks’). In all other positions, even after Proto-Armenian spirants developed from Proto-Indo-European voiceless stops and after the *-w-* reflex of laryngeals, the results of the shift of PIE *t* are found (cf. *ewtʿn* ‘seven’, *canawtʿ* ‘known’). We have to conclude that at the time of the Proto-Armenian soundshift a spirant (or perhaps an affricate) preceded immediately the **t* now reflected by *-t-* in *dustr*. This means that either *dustr* continues a form without a laryngeal, or a laryngeal reflex had been lost by this time.

Is the second alternative possible? In a paper whose main thesis has to be rejected, L. Deroy has suggested (*Innsbrucker Beiträge*, Sonderheft 15, p. 160) that the word for ‘daughter’ owes its ‘ə$_2$’ to other kinship terms, notably the word for ‘father’. This assumption takes care of a difficult problem: Greek shows the reflex of an *a*-coloring laryngeal, but **A* is the only laryngeal which cannot possibly have been the cause of the aspiration found in Indo-Iranian. If we mark, for the moment, this aspirating laryngeal with an **H*, we find: Av. *dugədar* and Skt. *duhitā́* both derive from a base (zero grade) **dhuǵH-*, but in Sanskrit this base is extended by an **A* extracted from *pitā́*. The same extension is found in Greek and Tocharian. Armenian *dustr* must be derived from unextended **dhuǵHtēr*. The question immediately arises: Why was **H* in peak position not vocalized?

We have a reflex of **-A-* in *hayr*, *bay*, *arari*; we have a reflex of **-O-* in *tam*, *keam*, *arawr* (cf. 1.2); but we do not have a reflex of **-E-*. On the contrary, we have one rather good case indicating that there was no peak reflex of **-E-*, viz., *anjn*, and two more examples (*-and*, *armukn*; cf. 3.2.4) may be interpreted in the same way. *-d* in

-and is the development from the post-resonant allophone of *θ (< PIE *t*), not of the intervocalic variant; this again indicates an early loss of the laryngeal reflex, as in *dustr*.

Everything seems to point in one direction: What has been written -*H*- in the above reconstructions, is to be identified as *-E-, and the earlier arguments in favor of *E and not of *O as the laryngeal causing aspiration in Indo-Iranian find new support. Is there any further evidence that would support the proposed reconstruction with *-E- for the word for 'daughter'?

The only languages known to preserve vocalic reflexes for *E different from those for *A and *O are Armenian, Greek, and Tocharian. Gk. θυγάτηρ does not provide any new information; neither does Toch. B *tkācer*. However, a strange discrepancy between Tocharian A and B deserves our interest: the A form for 'daughter' is *ckācar*, not *tkācar as one would expect considering the B word. A *ck*- is explained by A. J. van Windekens (*Lexique étymologique* 140) as due to assimilation. This is of course a possibility; however, we must not overlook the fact that A *ck* is also the outcome of the palatalization of a sequence *tk (cf. A *ratäk* 'army', pl. *racki*). This *ck* (= t^yk) has to be viewed as resulting from a reshaping of a sequence *tk^y. If the word for 'daughter' originally was *dhuǵEter, this would be regularly reflected by *$tək^yət^yer$ in what we might call Proto-Tocharian. After the intrusion of -*a*- from the words for 'father' and 'mother', the form became *$tək^yat^yer$; in A this became, through an intermediate form *$tk^yāt^yar$, $t^ykāt^yar$ (spelled *ckācar*). To be sure, this is only an alternative to the suggestion of Van Windekens; but in our context it certainly deserves our attention.

4.2.4. With a small group of forms only being characterized by the feature of specifically Indo-Iranian aspiration (to our list, Gk. ἕδνα/ἔεδνα, OE *weotuma* 'dowry; price paid for the bride' : Skt. *vadhū́*- 'bride' may be added), it is not really surprising that we should be unable to determine with certainty the nature of the laryngeal involved. What can be said in summing up our evidence, is that it seems most likely that the phenomenon was caused by the influence upon a preceding voiced stop of the neutral laryngeal *E.

In view of the internal inconsistencies found within the set of Armenian forms paralleling this group, it remains uncertain whether Arm. *s* represents a special reflex of *ǵE, or whether it is merely the result of an assimilation of *ǵ to a voiceless consonant following it after the loss of the reflex of *E. Armenian then cannot be said for certain to offer a parallel to the Indo-Iranian aspiration or the Hittite consonant lengthening as found in *uqqa* 'I', *mekkis* 'much' (note the earlier discussion, which arrived at somewhat different results, on p. 251 of the *Proceedings* of the Oslo congress).

4.3. E. P. Hamp proposes (this volume p. 135) to derive *j*- in Arm. *jez* 'you' from a combination of voiceless laryngeal and *y, and *ǰ*- from voiced laryngeal plus *y; the latter proposal agrees of course with that of Minshall. Minshall, in turn, accepts Meillet's suggestion (*MSL* 25.1920.251; not repeated in *Esquisse*²) that *j*- instead of *ǰ-* might be due to the assimilative influence of *-z* in *jez* of the dative, accusative, and locative.

As for *jez,* it must under no circumstances be overlooked that *je-* in Armenian occurs only in the oblique cases, that is, in those cases which as far as our reconstruction tells us were not derived from a *y-* stem, but from a *w-* stem of the pronoun (for the moment we disregard the question of initial laryngeals). It is therefore more likely that Arm. *je-* in no way reflects **ye-* or **Xye-*, not even indirectly, but that *je-* is to be connected with **we* or **Xwe-*. To derive it regularly from one of these sources seems impossible, but it is conceivable that a regular form **gez* was changed by assimilation to *jez.*

The connection between *ǰanam* 'I try' and Gk. ζῆλος seems extremely tenuous formally. This leaves only *ǰur* 'water' (: Lith. *jū́rės* 'sea', *jaurùs* 'swampy') as a possible attestation of a development Arm. *ǰ-* < **Xy-*. Two questions arise:

Can it be proved that the words for 'water' derive from **XyeXwr* and not from **yeXwr*? Is there evidence to show that **y-* did not yield *ǰ-*?

The first question seems to require an answer in the negative. As for the second, a more detailed argument is required:

Among the inherited kinship terms in Armenian is the word *ner* or *nēr* 'brother's wife; co-wife'. The vocalism need not concern us here. What matters, is the material before the vowel: *ner* must be explained as a development from **iner*; this in turn represents older **ener-*. If our derivation is correct (and in view of Gk. εἰνατέρες we seem to have no other choice), it follows that we have to assume a development **y* > **Ø-*.

It matters relatively little whether we set up our chain of developments posited as done just now, viz., as **yen-* > **en-* > **in-*, or whether we prefer to view the loss of **y-* as a special development before **i-*, which would mean that we assumed a chain **yen-* > **yin-* > **in-*: even in the latter case, it would be quite unthinkable that loss before **i-* would have happened to an affricate [dž] or [dy].

If *ǰ-* then in all likelihood is not the normal development from **y-*, does it follow that it represents a development from **Xy-* different from the development *č̣* noted in 3.2.2?

Since *ǰur* appears to be an isolated case, a special and quite different explanation may be proposed: Forms like *sterǰ* 'sterile' : Gk. στεῖρα and *anurǰ* 'dream' : Gk. ὄνειρον (cf. Meillet, *Esq.*, 52) show clearly that after *-r-*, **y* is reflected by *-ǰ-*. The antonym of *ǰur* 'water' is *hur* 'fire'. Could it be that *ǰ-* arose in a close phrase *hur ǰur*?

It seems that we do not have evidence that would require us to set up different reflexes for **Xy* depending on whether the laryngeal involved was voiced or voiceless in Proto-Indo-European.

5. In summing up, it may be stated that the consonantal reflexes of Proto-Indo-European laryngeals in Armenian are identical with a set of reflexes of PIE *k* (k^w): Initially we find *h-* or *Ø-*; in position after resonant and semivowel in (Proto-Indo-

European) peak position, -*w*- occurs before consonant, -*k*ʿ in secondary final. With a following **w*, **X* combines, at least in initial position, to yield *k*ʿ; with **y* the outcome apparently is *č̣*. No special reflex occurs after **e* and **o*; here long vowels are the only indication of the presence of a laryngeal in Proto-Indo-European (apart, of course, from vowel coloring affecting **e*).

While due to the uncertainties that exist about the stability of *h*- no definite conclusions as to the kind of laryngeal can be drawn from presence or absence of *h*-, there seems to be, in the vocalic reflexes, a clear contrast between the developments from **A* and **O* on the one hand and from **E* on the other – a situation which agrees with that found in Tocharian. A vocalic reflex of **E* survives only in initial position; in the interior of forms, the loss seems to be a very old phenomenon antedating, so it appears, the great Proto-Armenian sound shift.

EVIDENCE IN BALTO-SLAVIC

CALVERT WATKINS

In this expose I propose to examine two problems of Balto-Slavic historical phonology which are of relevance to the laryngeal theory. They are first, the Balto-Slavic intonations as reflexes of laryngeals, and second, the problem of Proto-Baltic **ō* beside **ā*.

I

Balto-Slavic belongs to that dialect area of Indo-European which shows a unitary reflex for both IE **o* and IE **a* (in traditional terms); **ō* and **ā* were distinguished in Baltic, but fell together in Slavic. Hence the evidence of Balto-Slavic in the matter of distinguishing one laryngeal from another, i.e., by coloration imparted, is more limited than in, e.g., Italic, Greek, or Celtic. As in the case of pan-IE long *ī* and *ū* from *i* or *u* plus laryngeal, it is the vowel length alone which serves as indication of the previous presence of a laryngeal.

It has been stated that "we may determine the presence of PIE laryngeals from the intonations in Balto-Slavic languages".[1] This is not, strictly speaking, correct, and as a generalization without further specifications it is likely to be misleading. A more proper formulation, though still in general terms, would be that from the intonations attested in certain Baltic and Slavic languages we may determine the original existence in certain positions of long vowels in Balto-Slavic, whether or not the vocalic length has been preserved in the historical languages. But there is no direct and unmediated connexion between the laryngeals of IE and the intonations of Balto-Slavic. In, e.g., Lith. *búti dúoti dė́ti* we have a long vowel preserved, with acute; but in the supine *bū̃tų*, or the 3 sg. fut. *duõs dė̃s* we have long vowel with circumflex.[2] Both representations are historically regular, and the treatment in the supine recurs in Slovene and Czech; for the purposes of the laryngeal theory we are justified only in assuming Balto-Slavic bases *bū- dō- dē-*, and the former presence of a laryngeal in these must be deduced from other sources or on purely structural grounds.

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[1] W. P. Lehmann, *Proto-Indo-European Phonology* 31 (Austin, 1952). Compare A. Martinet, *Phonetica* 1.24 (1957) for a similar statement.

[2] N. van Wijk, *Die baltischen und slavischen Akzent- und Intonationssysteme*^{2} 136–7 ('s-Gravenhage, 1958).

The unique and characteristic feature of Balto-Slavic, however, is that an IE or perhaps early Proto-Balto-Slavic sequence *ERə* (including *iRə uRə* < IE [R̥H]) before stop or resonant yielded tautosyllabic long diphthongal sequences *ĒR*. The long vowel of these sequences was subsequently shortened, but the original length is reflected by an acute accent as opposed to the circumflex on original short diphthongs. It is the former presence of these long vocalic nuclei, *ĒR* from IE *ERH* plus *C*, which is attested by acute accent. But the intonability of these long nuclei is on exactly the same footing as that of the other simple long vowels of the system, *ī ē ā ō ū*. Thus the result of an IE sequence *EHR* will be likewise *ĒR*, though such cases are rather rare in Balto-Slavic. The original position of the laryngeal is irrelevant; only the original (i.e. Balto-Slavic) quantity is significant in the appearance of the intonation.

In the position before vowel, the laryngeal in an IE sequence *ERH* was lost without trace. On the other hand, the zero-grade counterpart *RH* before vowel resulted in *iR uR* before the vowel, with loss of the laryngeal, in other words, the same treatment as that of [R̥] before stop.

A paper to be limited to 20 minutes is no place to attempt a theory of Balto-Slavic accentology. One is referred to the studies of Van Wijk, Stang, and Kuryłowicz,[3] to mention only a few relatively recent, and more or less incompatible, treatments of the subject. The whole situation and the confusing variety of data must rank as perhaps the most complex problem in IE historical grammar. Simply as a rule of thumb, echoing Saussure and most recently Stang, we may say – largely on the basis of observation – that in primary nominal and verbal forms Balto-Slavic long vowels and diphthongs in the initial syllable of polysyllabic words will generally have an acute. Hence they may be adduced as evidence for a lost laryngeal; but – and this is significant – only insofar as it is a laryngeal which is responsible for the original long vowel.

We may illustrate this with an example: 'heart' is acc. sg. Lith. *šìrdį*, Latv. nom. sg. *sir̂ds*, S.-Cr. *sȑce*. On the evidence of the acute intonation we may posit a Balto-Slavic **šīrd-*, the zero-grade form of the consonant stem as attested in Old Lithuanian (Daukša) forms. Lehmann (*PIEP* 31), evidently on the evidence of Balto-Slavic alone, then assumes a PIE full grade form **keXrd-* for Gk. κῆρ, Skt. *hā́rdi*, etc. But we have evidence for the full grade long diphthong in Lith. *šerdìs* 'marrow, heart of wood' (acc. *šérdį*, Latv. *ser̂de*) < **kērd-*, and it would seem far more easily reconcilable with the other comparative facts (Skt. oblique cases *hr̥d-*, Gk. κραδίη, Lat. *cord-*, Hitt. *kard-*) to assume an original paradigm with lengthened grade nom. sg., Baltic **šērd* gen. **širdes*, with analogical extension of the long diphthong to **šīrdes* from **šērd*.[4] In the absence of corroborative data from other languages, Balto-Slavic quantity alone cannot be taken as indicating a laryngeal unless it can be shown conclusively that no other origin for that quantity is possible. This view of the absence of direct connection between the laryngeal as such and the intonations of Balto-

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[3] Van Wijk, above note 2; Stang, *Slavonic accentuation* (Oslo, 1957); Kuryłowicz, *L'accentuation des langues indo-européennes*² (Kraków, 1958).

[4] So P. Skardžius, "Alte Wurzelnomina in Litauischen", *IF* 62.162 (1956).

Slavic, maintained by Kuryłowicz, has been recently upheld by V. V. Ivanov,[5] and seems the most likely yet offered.

We may conclude that Balto-Slavic, in parallel fashion to the great majority of other Indo-European languages, furnishes by its intonations and quantities evidence for a laryngeal only there where the loss of that laryngeal resulted in a long vowel by compensatory lengthening. This group is unique, however, in the development of tautosyllabic long diphthongs from earlier sequences of short vowel plus resonant plus any laryngeal. Aside from its value in ascertaining the original presence of laryngeal in individual lexemes, this fact is not without interest in the general phonetic typology of laryngeal reflexes. In this connexion it is likewise worth considering the likelihood that this transformation took place within the dialectal period of Common Balto-Slavic, and thus that the laryngeals were conserved into the dialectal period in at least certain positions, with some sort of phonetic body.[6]

One must, however, insist on the fact that the intonations are by no means unambiguous in a great number of cases; they can be used effectively only as supporting evidence, never as conclusive evidence. On the one hand there are cases, due to accent shift or otherwise, which result in so-called "unhistorical" acute or circumflex accent; on the other hand the laryngeals are by no means the only source for long vowels with acute even in Proto-Balto-Slavic, which is one of those languages which has most widely innovated in the development of the intra-dialectal lengthened grade (Dehnstufe) formations.

II

It is generally recognized that the Proto-Baltic vowel system had both long *ō* and long *ā*, in contrast to Common Slavic – though perhaps not Proto-Slavic.[7] Reflexes of both are kept distinct in Letto-Lithuanian: Proto-Baltic *ō* > Lith., Latv. *uo*; Proto-Baltic *ā* > Lith. *o*, Latv. *ā*. We need not go into the question of whether these reflect two sorts of IE *ō*, debated at an earlier period of IE studies. The simplest and clearest explanation of the two is, grosso modo, the position of Endzelins: (in prelaryngeal formulation) Balt. *ā* < IE *ā*; Baltic *ō* < IE *ō* and *ōu*. To these we must add that Baltic *ā* also represents: a) the lengthened grade of Baltic *a* (< IE *o*) in the numerous Dehnstufe categories formed within the Balto-Slavic and Baltic period, and b) the reflex of Baltic *a* from IE *o* before resonant plus laryngeal: *oRH* > *aRə* > *āR*. The same is characteristic of Slavic, where IE short *o* and *a* appear as *o*: *oRə* > *āR*, metathesized to *Rā*.[8]

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[5] *Vop. Slav. Jaz.* 1957.2, p. 7, arguing against the position of A. Vaillant, "Le problème des intonations balto-slaves", *BSL* 37.109–15 (1936).

[6] I would doubt, however, that this would be as late as van Wijk, *op. cit.* 126–7, seems to imply.

[7] J. Endzelins, *Baltų kalbų garsai ir formos* 17–18; *Lettische Grammatik* 38–39.

[8] See R. Jakobson, "On Slavic diphthongs ending in a liquid", *Word* 8. 306–10 (1952), where the formulation is *åRə* > *ā̊R*.

In the very summary discussion of the two Baltic vowels in his *Introduction*, Meillet assumes Baltic *ā* from IE apophonic *ō* (alternating with *ē*, Balt. *ē*) and Balt. *ō* from IE non-apophonic ('isolated') *ō*[9]. This statement has given some grounds for the supposition that Baltic *ō* should reflect IE *e/o* plus H_3, the laryngeal viewed as *o*-coloring. Baltic *ō* could thus in theory have considerable discriminatory value in laryngeal studies. As it turns out, this is in large part illusory. Meillet was quite correct in his observation that Baltic *ā* is the NORMAL apophonic counterpart of *ē*. But it is nonetheless true that we have a fair number of isolated cases of Baltic *ō* in apophony with *ē*.

From the items I have listed in the appendix, which is only a sampling and not meant to be anything like exhaustive, it would seem clear that Baltic *ō* may reflect any of several possibilities. In particular:

1. IE lengthened grade (Dehnstufe) *ō*, EITHER lengthened apophonic *o*[10] OR lengthened non-apophonic (initial) *o*- $<H_3e$-.[11]
2. IE *e/o* followed by *o*-coloring laryngeal, either with[12] or without[13] evidence for labialization.

A certain number of the forms presented give the appearance of being specifically Baltic lengthened grade formations, and not directly inherited from Indo-European or even common Balto-Slavic. Such are in particular the verbs *úosti*, *dúobti*, *gúosti*, *tuõkti*, and the nominal forms *kuõlas*, *úodas*; *núogas* is Balto-Slavic, but not Indo-European.

Now we know that in a good many properly Baltic morphological categories, such as the -*ė*- pret. or the deverbative nouns in -*ė*, there existed an apophonic situation Baltic $e : a = a : \bar{a}$; the situation has been described in detail by Kuryłowicz, *Apophonie* 294ff. The process is one where the lengthening of Baltic *a* yielded Baltic *ā*, and was thus identified with the reflex of 'late' IE *ā*. This phenomenon is widespread in the Baltic languages, and must have enjoyed a high degree of productivity.

On the other hand the apophonic phenomena involving Baltic *ō* are very limited in extent, and not a characteristic derivational mark of any particular formal category. They are residual.

It seems to me that this situation can best be accounted for by the assumption of an early Proto-Baltic derivational system

$$\begin{tikzcd} e \arrow[r] \arrow[d] & o \arrow[d] \\ \bar{e} \arrow[r] & \bar{o} \end{tikzcd}$$

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[9] A. Meillet, *Introduction*^{9}, 103-4.

[10] See appendix, sections 1 and 5.

[11] See appendix, section 4.

[12] See appendix, section 3.

[13] See appendix, section 2.

existing before the passage of short *o* to *a*, and that it is traces of this system which we have preserved in these residual apophonic forms.

The passage of *o* to *a* however brought about a new derivational system of vocalic alternations:

$$\begin{tikzcd} e \arrow[r] \arrow[d] & a \arrow[d] \\ \bar{e} \arrow[r] & \bar{a} \end{tikzcd}$$

whence the new lengthened grade *ā* ousted the older *ō* as the productive Dehnstufe mark, though in origin it was only the reflex of IE *ā* < *eA*.

The position of the Baltic long diphthongs in this matter may also have operated as a catalytic factor in the substitution of the second apophonic scheme for the first. For the reflex of IE *oRH* was Balt. *āR*, as we have stated. The alternative is to assume that a sequence *oRə* was preserved as a dissyllabic nucleus until the passage of *o* to *a*, and that it was the nucleus *aRə* which gave directly *āR*.

I should like to point out finally that the cases of alternation of Baltic *ō* and *au*, to a certain extent repeated outside Baltic, seem to me particularly worthwhile examining in the context of recent developments in laryngeal theory. Compare the examples under section 3 of the appendix, such as Lith. *úostas* : Lat. *ōstium* but Skt. *oṣṭha-*. It may be that these can provide additional testimony relative to the assumed labial component of the third laryngeal, and in particular may afford independent testimony for the possible distinction of a labialized and nonlabialized laryngeal, both with *o*-coloring effect. The problem of IE **ōg-* and **aug-* 'grow', in the second example of section 3, raises certain problems of morphophonemics in root shapes, somewhat analogous to Gk. τραῦμα : τρῶμα, as pointed out by Cowgill in his paper on Greek. On the other hand, it is possible that the greater number of these forms in Lithuanian simply reflect the development of a new alternation *au* : *uo* parallel to that of *ai* : *ie*, as Kuryłowicz has kindly suggested to me.

APPENDIX

1. Baltic *ō* in morphological categories (corresponding to IE lengthened *ō*, not *e* plus H_3 or the like):

(Forms are Lith. unless otherwise marked)

infinitives in *-uoti*	(< *o*-stem nouns with secondary lengthening);
adjectives in *-uotas*	(as above. *ragúotas* 'horned' = OCS *rogatъ*, Gk.-ωτος: δινωτός, Myc. *qe-qi-no-to* PY Ta 642);
nom. sg. of *n*-stems	in -(*m*)*uo* < -(*m*)*ō*(*n*), and cf. *-uo* < -*ō*(*r*) (*sesuõ*) in ablaut with -*ė* < -*ē*(*r*) (*duktė̃*), as well as the isolated nouns *šuõ* 'dog', Latv. *gùovs* 'cow';

various case forms of *o*-stem nouns;
the only case where *uo* in a morphological category may reflect IE *ō* < PIE *e/o* plus *H* is the first sg. *-u*, reflex. *-uo-s*.

2. Baltic *ō* < IE *e/oH*$_3$:
puotà 'banquet' : Lat. *pōtus* Gk. πώνω
dúoti 'give' : Gk. δίδωμι etc.
júosti 'gird' : Gk. ζώννυμι
puolù 'I fall' : Arm. *pʻul* 'fall (n.)' *pʻlanim* 'fall (v.)' < **p(h)ōlo-* : OHG *fallan*
(?) *puõšti* 'decorate' : Goth. *fagrs* 'fitting', OE *fæger* 'fair'
(?) *luõtas* 'boat' (hollowed log) : OCS *latъvъ* 'pot'; acute is suggested by Slov. *látva*, Cz. *látka*
dúona 'bread' : Skt. *dhānā́ḥ* 'grain' (further to Hitt. NINDA *dannas*?)

3. Baltic *ō* beside cognate *au* (Baltic and outside):
úostas 'rivermouth; harbor' : Lat. *ōstium ōs*; I.-Ir. *ās-*; OPruss. *austo* 'mouth' OCS *usta* Skt. *oṣṭha-*
úoga 'berry' : OCS *(j)agoda* 'berry': IE **ōg-* 'grow' (Pokorny); cf. IE **aug-* 'grow'
gúotas 'herd' : *gaujà* 'troop': Gk. βόσκω βοτήρ βώτωρ
duobẽ 'pit' *dúobti* 'hollow out' : *daubà* 'gully', OPruss. *padaubis* 'valley'; further to Goth. *diups* 'deep' with *e/ou*!

4. Baltic *ō* beside (apparently) non-apophonic *o* in IE:
úosti úodžiu 'smell of' : Lat. *odor* Gk. ὄδωδα
úosis 'ashtree' : Lat. *ornus* < **osi-no-*; Gk. ἀχερ-ωίς < **ōsi-*?
uolektìs 'ell' (Latv. *uôlekts*) : *alkúnė* 'elbow' OCS *lakъtъ*, S.-Cr. *lâkat*, Lat. *ulna* < **olenā*, Gk. ὠλένη
(with the initial *ō̆s- ō̆l-* of the last two may be compared also Lat. *umerus* < **omeso-*, Goth. *ams* Skt. *aṁsa-* < **omso-*, but Gk. ὦμος < **ōmso-*)

5. Baltic *ō* beside IE *e/o*:
kuõlas 'pile, stake' : OCS *kolъ* 'id.', Lith. *kálti* 'hammer', Russ. *kolót'*; B.-Sl. root **kolə*, IE *kelH-* in Lat. *-cellō*.
skúokć (interject. = Germ. *hops*, *hopp*) *kuokìnė* 'evening dancing' :
OCS *skokъ skočiti* 'jump'
B.-Sl. root **skok-*, IE **skek-* in OIr. subj. *scess-* to *scochid* 'jumps'
núogas 'naked' (Latv. *nuôgs*) : OCS *nagъ* Russ. *nagój*
B.-Sl. root **nōg-*, IE **neg*^{w}*-* in Hitt. *nekumanz*
úodas 'gnat' (Latv. *uôds*) : B.-Sl. **ēd-*, Lith. *ē̆sti* 'eat'
súodžiai 'soot' : B.-Sl. **sēd-*, *sē̆sti* 'sit'
rúožas '*cut' : *rē̆žti* 'cut', OCS *rězati*, Gk. (ϝ)ρήγνυμι

slúogas 'load' : *slĕgti* 'weigh heavily on' (etym.?)
Latv. *buôksts* 'pedlar' : *bĕgti* Latv. *bêgt*, OCS *bĕgǫ* 'run'
gúosti guodù 'comfort, pity' reflex. 'lament, complain' : *gedĕti gedù* 'lament, mourn the dead' (new etym.)
tuõkti 'marry (of a woman)' : *tekĕti tekù* 'run' *ùž výro tekĕti* 'marry (of a woman)' (= Russ. *itti zamuž*)
núoma Latv. *nuõma* 'lease' : Gk. νέμω Goth. *niman*; cf. Gk. νωμάω < **nōmā*

EVIDENCE IN ALBANIAN

ERIC P. HAMP

1. It is amply clear that in IE there were phonemes, in a number exceeding one, whose later reflexes are most clearly to be seen in

a) certain phonemes of the languages of the Anatolian group (e.g. Hittite *ḫ*);

b) certain complex correspondences (e.g. IE schwa, Greek ζ vs. rough breathing, vowel length and the voiceless aspirates in Indic, the Germanic Verschärfung);

c) certain subtle relational entities by the introduction of which our statement of the underlying phonemic and morphophonemic sets and functions become greatly simplified (e.g. *-*A* in the *ā*-stems).

Point (c) is of course the general case, of which (a) and (b) are the most transparent instances.

The greater part of this paper has to do with phenomena analogous to that mentioned under (a) above.

2. The question then remains: How many laryngeals are we to assume? The alternative to this question is the less likely, but, for the cases here in point, structurally indifferent consideration: What componential clusters were possible in addition to the basic units?

Lehmann, Sturtevant, and Crossland[1] give us a sampling of the answers that have been proposed; Lehmann,[2] following Sapir assumes four: /x γ h ʔ/.

After the work of recent years in Anatolian philology and linguistics, it is impossible to deny the attestation, e.g., in Cuneiform Hittite, of reflexes of what we may call /x/ and /γ/.[3]

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[1] *Proto-Indo-European Phonology* (Austin, 1952); *The Indo-Hittite Laryngeals* (Baltimore, 1942); "A Reconsideration of the Hittite Evidence . . .", *TPS*, 1951, 88–130.

[2] *PIEP*, section 12.8.

[3] It is simplest, throughout the rest of the discussion, to follow Lehmann's symbols for the separate laryngeals, regardless of whose doctrine is referred to in details. For reasons of convenience, it would be useful if scholars could agree in some measure on the symbols to be used for discussion of the laryngeals. Following in general Lehmann (*PIEP*, fn. 1, pp. 7–8) and Sturtevant (IHL sec. 12) I propose to use the following cover symbols:

X	any laryngeal	*Ω*	an *o*-colouring laryngeal
H	any voiceless laryngeal	*Ḫ*	a laryngeal retained in Hittite
E	a non-*a*-colouring laryngeal	*Z*	a laryngeal not retained in Hittite
A	an *a*-colouring laryngeal		

Apart from well known, but more intricate, considerations based on comparison from several IE dialects, Hittite further seems to provide evidence of a less direct sort for the recovery of */ʔ/ in a pair such as *eszi* 'est' : *asanzi* 'sunt'.[4]

More recently, Martinet (*Word* 9, 253–67, 1953) has taken up very persuasively the argument for an *o*-coloring laryngeal, which he would add to the list. I have tried (*Word* 11, 399–403, 1945) to credit this behavior to /γ/, which might thereby be better labelled /γ^{w}/.

Still more recently,[5] Martinet has proposed two matching sets totalling ten entities. This proposal seems to follow notions of pattern symmetry more than straight recovery of phonemic correspondences.

For the present, therefore, the question as to the number of laryngeals may be restated: Are we or are we not forced to assume */h/?

3. The purpose of the present paper is to introduce evidence from Albanian to show:

a) that we cannot attempt to avoid the assumption of **h*, which is preserved to the present day in Albanian,[6] and

b) the reflexes of laryngeals in Albanian so far as I have been able to formulate them on the basis of etymologies which I now find acceptable.

From the material offered below several advantages are gained:

1. Satisfactory etymologies are reached for forms that had previously been explained either unsatisfactorily or not at all.
2. For a language as problematical as Albanian, a not inconsiderable number of clear cases can be adduced.
3. Most of the forms involved belong to the most common "basic" portion of Albanian vocabulary.
4. A sizeable portion of IE (IH) phonology is greatly strengthened at the same time that a less well-attested area is buttressed.
5. Further refinements become possible, as a consequence, in determining the character of laryngeals in instances otherwise left ambiguous.
6. Certain long-range implications, alluded to below, emerge.

4. *The Albanian evidence for the laryngeals.* Albanian forms must be used with caution, since there are several sources of difficulty in dealing with them: Normal phonological change sometimes momentarily conceals a perfectly straightforward etymology (*ftet* < Lat. *uēritā́tem* via loss of final syllable, pretonic syncope, loss of medial *r* in triconsonantal clusters, voiced-voiceless assimilation in clusters, regular representation by *-tet-* of Lat. *-tās*, *-tātis* whether by umlaut or by suffix-substitution; cf. *fqin* < Lat. *uīcī́num*); under such conditions, troublesome ambiguity may fre-

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[4] See my Addendum to Crossland's article, *TPS*, 1952, 110–13, and also *PIEP*, section 3.6G.

[5] *Proceedings of the VIII International Congress of Linguists* (Oslo, 1958), 36–43.

[6] This point has been briefly made by me in print in *Studies Presented to Joshua Whatmough* (The Hague, 1957), 88, and references there cited.

quently be expected. Thorough descriptive work of individual dialects on a scientific basis is painfully lacking; consequently the grammatical literature abounds in forms eclectically lifted from sundry and often unspecified sources. I avoid this difficulty by citing forms so far as I can from the Calabrian-Albanian dialect of Vaccarizzo Albanese (Prov. Cosenza) and from the Greek Albanian dialect of Sophikò (Corinthia), which I know at first-hand; most other forms cited I have heard from Albanian informants whose dialects I can control; I accept book-forms as a last resort, and only from sources which I consider dependable.

Much work of value lies scattered and little-read in numerous isolated articles and monographs in an annoyingly broad range of journals. Some points have received a wide variety of interpretations, and in some cases one interpretation has been transmitted in the standard works to the exclusion of others long after its time. In this fashion the better known books sometimes fail to reflect accurately the state of knowledge in this field. I hope at some future date, on the basis of my collections, to present a unified and sifted account of the comparative and historical grammar of Albanian.

4.1. **h*. This phoneme has been posited mainly to account for *a*-vocalism where no *ḫ*(*ḫ*) occurs in Hittite and for certain associated voiceless aspirates in Indo-Iranian. Up to the present it has appeared to be lost as a separate phoneme, particularly in position between juncture and syllabic, in all attested languages. Evidence: */#h/ before syllabic (when stressed in Proto-Alb. time) > Alb. /#h/, Vaccarizzo /#γ/, Greek Albanian enclaves /#x/ (or /#h/).[7]

4.1.1. Vaccarizzo /γáp-/, Sophikò /háp-/, Alb. *hap* 'open' : Hittite *apa* 'afterwards', 'again, back'; Hieroglyphic Hittite *apan*(*a*) 'back, again', Lycian *epñ*; Skt. *ápa* 'away, forth'; Greek ἀπό, Lat. *ab* 'from'; Greek ἄψ 'backwards, back again'; Lat. *absque* 'without'. On the basis of the non-Albanian forms Sturtevant[8] reconstructs IH **hép-*. This fits the Albanian evidence perfectly (Proto-Albanian **hápo*:), and is preferable to Meyer,[9] who remarks "wohl **skep* 'spalten'." In Alb. *prapë*, Vaccarizzo /práp-/ 'back, behind', it appears we have **per-*/**prV-* plus **hap-*; in that case **h* seems to be subsequently lost after /+/, or else after close juncture.

4.1.2a. Vaccarizzo /γíń/, Sophikò /híiń/, imperative sg. /hírə/, Geg *hŷj* 'I enter':

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[7] Except for allophones of Vaccarizzo /æ/, virtually identical dialects are spoken in the villages of Santa Sofia d'Epiro (native name /sənsofíya/), San Demetrio Corone (/šənmíter/), Macchia (/máḱ/), which was the 19th century poet Girolamo De Rada's home village, San Cosmo Albanese (/strigár/), and Giorgio Albanese (/mbuzát/); all these villages lie along the same mountain slope forming the south wall of the valley of the River Crati, to the north of the rugged Sila Grande and between the towns of Bisignano and Corigliano Calabro. For Greek Albanian, I illustrate throughout from the dialect of Sophikò (Corinthia), which is the most conservative dialect known to me for Proto-Tosk vowel length. Doubtless through Hellenization, the prenasalized and voiced stops are often interchanged medially and are never distinguished initially in Sophikò.

[8] *A Comparative Grammar of the Hittite Language*^{2}, vol. 1 (New Haven, 1951) (hereafter abbreviated *HG*), § 76.

[9] *Etymologisches Wörterbuch der albanesischen Sprache* (Strassburg, 1891).

Hittite *u-*, *we-*, *wa-* ‘hither’, *awan* (an adverb used with other location forms; ‘apart’?); Skt. *ava* ‘off’, Avest. *avă* /aua/ ‘hinzu, hinan’; Slavic *u-*, O. Pruss. *au-*. Lat. *au-* ‘away’, OIr. *ó*, *ua*, Welsh *o* ‘from’; prefix **h*(*V*)*wV-* in Alb. *v-des* ‘die’, Geg *f-toft*, Tosk *f-tohëtë* ‘cold’, Vacc. /ftóγet/. On the basis of the non-Albanian forms Sturtevant (*HG* § 76) reconstructs IH **héw-*. The ancestor for our form would be Proto-Albanian **húnyo*: ‘I enter’, **húni*:*t* ‘he enters’, or **hú*:*n-*; Meyer gives no etymology. This could be analyzed as **hw-* plus the very common verbal suffix *-*ny-*/*-ni-* which has been productive throughout the history of Albanian; cf. Vaccarizzo /ḱáń/, Castroregio /kláń/, Geg *qaj* (Proto-Albanian **klaw-nyo*:) : Barile[10] /klá/, Greek κλαίω ‘I weep’. On the other hand, if the Hittite *awan* has old *-*n*, and not an old case-ending, it is also possible to divide the Albanian form **hwn-* plus the inherited (and productive) verbal suffix *-y-/-*ĭ*-; cf. Vaccarizzo /klás/ ‘I insert’, /klét/ ‘he inserts’ < Proto-Albanian **kVlát-yo*: **kVlát-i*:*t*. One might also wonder whether we have here a refashioned trace of the form found in Hittite *unnai* ‘drives hither’.

4.1.2b. Geg *hut* ‘empty’, Tosk *hutonj* ‘gape, daze’, and allied forms.

Jokl, in *Studien zur albanesischen Etymologie und Wortbildung* (Wien 1911), p. 31, has already resourcefully connected this word with Greek αὕτως, αὔσιος (Doric for τηΰσιος) ‘empty, useless’, Gothic *auþeis*, OHG *ōdi* ‘empty’; see further Boisacq^{4} 104 and 1099. These forms, in turn, are assumed to be related to the base seen above in Skt. *ava*, Lat. *au-*, Slavic *u-*, etc. On the Albanian form, Jokl remarks (p. 32): “Das anlautende *h* ist unorganisch.” Instead, we find now that this *h-* is just what we would expect, and the association already made by Jokl neatly confirms the status and reconstruction of the forms just dealt with in 4.1.2a.

Thus we have Proto-Albanian **hútVs* < **hwt-*, perhaps **hwtós*, with zero-grade of **héw-*.

4.1.3a. Vaccarizzo /γí/, Sophikò /híi/, def. /híri/ or /híit/, Geg *hî*, def. *hîni*, Tosk *hī*, def. *hiri* ‘ashes’ : Hittite *ari* ‘is hot’, *an* ‘hot’, Greek αῖθος ‘heat’, Skt. *édhas* ‘firewood’, *indhanam* ‘das Anzünden’, perhaps Arm. *ayrem* ‘I burn’ (which has been related to Av. *ātar-* ‘fire’).

On the basis of the non-Albanian forms Sturtevant (*HG* § 76), by analyzing *ari* < **aya-ri*, reconstructs IH **héy-*. The Albanian form has always been a vexing riddle,[11] but may now be compared with the Skt. form with the verbal *n-* infix cited above, and may be reconstructed as **hýd‘Vno-* > **hiVn-* (by intervocalic loss of voiced stops and loss of final syllables) > Early Alb. **hí*:*ni* (def.). The proximate final nasal gives Geg nasalization, regularly converted to length in Tosk; the intervocalic nasal gives Tosk *-r-*. The entire development is thus quite regular, although it must be pointed out that on the basis of my present theory that loss of intervocalic obstruents produced Early Albanian length, I would expect this length to be preserved in

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[10] Castroregio is a village north of the River Crati; I have heard one informant from that town. Barile is a village north of Potenza; I have spent about four days in Barile. I have recorded similar forms elsewhere in Italy and Greece.

[11] See Tagliavini, *L'albanese di Dalmazia* (Firenze, 1937), p. 132, s.v. *i*.

Sophikò def. /híri/. On the other hand, there are analogues whereby the Sophikò vocalism could have been shortened by analogy.

4.1.3b. Geg *(h)idhunë*, Tosk *hidhur*, Geg *(h)îdhitë*, Tosk *hidhëtë* 'bitter'; *hith* 'nettle', Sophikò /híiθ/, pl. /híiθe/, Geg *hîth*, (with diminutive suffix) *hidhës*, Barile *hiðza*.

These forms are not attested, to my knowledge, in Vaccarizzo, though Meyer (p. 152) cites a Calabrian *γiθ*, and Acquaformosa has *χī́θi*. They have all been related by Jokl (see Tagliavini p. 136, s.v. *iθ*, p. 134, s.v. *ílum*, and Pokorny *IEW* 12) to Skt. *inddhé* 'entzündet', though he was obliged to consider the *h*- "inorganic." It is true that *h*- is lost in some dialects of Albanian; dialect mixture also produces anomalous distributions. But note in Dushmani *hįθa*/*θįθa* (: **fįθa*; cf. *hį* 'ashes' beside *fį* 'lessive', which is supposedly identical in origin) 'nettle', yet *iðt* 'bitterly'.

From earlier times we find a similar picture. Bogdan (Cuneus proph.) writes *hûndëtë* 'nose (plural in form)', *Hyji* 'God', *të hijnjënë* 'that they were to enter', *ndihmë* 'help', but *aqa i idhunë* 'so bitter'. And for S. Marzano in Italy, near Taranto, which preserves old *h*-, Meyer (*ZRP* 1891, 546 ff.) gives *idrɛ* 'amaro'; my own field notes from S. Marzano agree in showing /íddrə/. Kristoforidhi (p. 131), for the various forms glossed πικρός and πικραίνω, lists Tosk forms with *h*- and Geg forms without *h*- throughout, whereas (p. 478) for ἡ κνίδη, forms are listed from Scutari, Kruja, Elbasan, Përmet, Korça, and Tirana, all with *h*-.

This attempt to disregard an *h*- when convenient will be seen to have marred several otherwise sound Albanian etymologies; see most recently in this etymological tradition W. Ćimochowski, *Lingua Posnaniensis* 2.224 (1950).

We now need not hesitate a moment in associating **hinθ*- or **hi:nθ*- 'nettle' with those forms discussed in the preceding etymology. But because of the outlying Geg and Tosk dialect forms, we must for the present exclude the word for 'bitter' from this etymon.

4.1.3c. Vaccarizzo /γír̄/ 'nettle'.

I have record of the above form in the sequences /γír̄t/ 'nettles' and /ńtróp γír̄/ 'a nettle plant', but have not succeeded in finding record of such a form in any of the published materials from other dialects. Unless this is a reshaping of the form cited above (in which case the source of the contamination is not clear), we appear here to have the same base with an *-r-* suffix; but with so ambiguous and isolated a form there is no useful purpose served in attempting a reconstruction.

From Sophikò I have record of a form kindly supplied to me by Demetrios Moutsos /híi/ 'nettle', def. /híri/ also /híu/, homophonous with 'ashes'. While it is just possible that this is the original simplex, it may also be an analogical backformation by treating /híiθ/ as a descriptive diminutive, which it no longer is. In light of this form, it is conceivable that Vaccarizzo has made a new indefinite from **hiri*, conflating /r/ with /r̄/, as sometimes happens.

4.1.4a. Vaccarizzo /γípiń/ 'I mount (e.g. a donkey)', Sophikò /hípiń/ (transit.), /hípem/, Barile /hɪpəm/ 'I go up', Geg *hyp*, *hypij* : Hittite *upzi* '(sun) rises', Skt. *úpa* 'up, hither', *upári* 'over'.

Barić[12] had suggested the association of this form with Slav. *vysok-*, Greek ὑπέρ, but the etymology is doubted by Tagliavini, who shows commendable restraint in such matters. In this case, however, it turns out that Barić was on the right track. I reconstruct here a base **hwp-*, from which one may posit a Proto-Albanian **húpyo*: 'I mount', **húpi:t* 'he mounts', or **hú:p-*. This should resolve the reservation on the character of the laryngeal expressed by Hoenigswald (*Lg*. 28. 184) in discussing this base.

Paralleling the **s-* forms discussed by Hoenigswald in that article and exemplified by Lat. *super* 'over', we may have a reflex of this variant within Albanian. Meyer (p. 152, s.v. *hip*, for which he offers no etymology) cites a form from Piana dei Greci (now Piana degli Albanesi, near Palermo, in Sicily) *unǵíp* 'ascendit'. This might be analyzed *u-* (medio-reflexive prefix), plus *n-ǵíp-* < prefixial **Vn-* + *súp-*; for initial **s* before accent, cf. *gjumë*, Vaccarizzo /ǵúm/ 'sleep' : ὕπνος.

4.1.4b. Sophikò /húmbiń/ (transit.), /húmbem/ 'I go down', Standard Alb. *hump*, aorist *humba* 'lose, go down', *hup*, *hupem* 'get lost', *húpëtë* 'dry (of bread), firm (of snow)', Borgo Erizzo (Dalmatia) *úmbăt* 'deep', Barile *ñi pʋ́c hʋ́mtu* 'a deep well'.

I have no record of these forms in Vaccarizzo. Meyer leaves them unexplained. Barić,[13] less happily this time, suggested **supō*. I suggest a nasal present from the base **hwp-*, Proto-Albanian **humpo*: 'I go down (or the like)'. Semantically, then, *humb-* and *hyp* stand in relation to one another as Goth. *uf* to *ufar*, Greek ὑπό to ὑπέρ, Irish *fo* to *for*, Lat. *sub* to *super* and *sus-* < **sups-* (: OCS *vъs-/vъz-*). For parallel polarities, cf. Skt. *ádhi* 'on' : *adháḥ*, Eng. *under*; Skt. *ava*, Lat. *au-* 'away' : Avest. /aua/, Hittite *u-* 'hither'.

It is convenient at this point to call attention to the sets of verbs and particles derived from the same bases that have now been set up:

Alb. *hap* : ἀπό, ἄψ
Alb. *hŷj* : Avestan /aua/, Hittite *u-*
Alb. *hyp*, Hittite *upzi* : ὑπέρ
Alb. *humb* : ὑπό

To these we may add:

Engl. *sit*, etc. : Engl. *at*
Lat. *uertō* : OIr. *frith-*, Welsh *wrth*
Hittite *parḫ-* : Lat. *per*
Hittite *tarḫḫ-*, Lat. *in-trāre*, *trāns* : OIr. *tar*, Skt. *tiráḥ*

I now propose adding another item to this list, an Albanian form that has thus far resisted analysis.[14] Geg *vê*, Vaccarizzo /vǽ/, Sophikò /vә́ә/ 'I put' (Sophikò imperative

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[12] See conveniently Tagliavini, p. 135, s.v. *ip*. On the connexion with Messapic *hipa-*, see Bugge *BB*. 18.195, 1892, and Hamp, *Studies presented to Joshua Whatmough* (1957), 88. If the Messapic evidence is relevant, in *hyp* and *hŷj* we seem to have secondary "dehnstufe" of **u* parallel to the familiar phenomenon in Balto-Slavic.

[13] See Tagliavini, p. 279, s.v. *úmbăt*.

[14] See Tagliavini, p. 279, s.v. *vęnd* "luogo'.

/vɘ́rə/) may be reconstructed **vén* < **ʔóno*: ; *vend*, Vaccarizzo /véð̃/ 'place' becomes the participle **ʔonto-*. These verb forms may now be set beside Eng. *on*, OCS *vъ*.

At this time it is not possible to do more than note the productivity of such bases as verb stems, and very basic everyday ones too, that Albanian shares with Hittite.

This line of reasoning may suggest a solution for the ambiguous Latin verbs *aperiō* and *operiō*. It is clear that such particles had a limited suffix morphology: We find an *-*r* (of 'opposition'?) in

Skt. *úpa*, Greek ὑπό : ὑπέρ, etc.
Skt. *adháḥ*, Arm. *ənd* : *ádharaḥ*, Goth. *undar*, etc.
perhaps Greek ἐπί : Old Irish *iar* (< **ēr-* < **e(p)ir*).

There was, moreover, an *-*i*:

Hittite *ser* : Lycian *hri*
Greek ἐν : ἐνί, Ogam Irish INI-GENA 'daughter'
Skt. *upar* : *upári*, Av. *upairi*
Skt. *adhaḥ* : *ádhi*, Gaulish *ande-*
Lat. *ob* (< **op*) : Skt. *ápi*, Gk. ἐπί, Mycenaean *o-pi*.

We may therefore suppose a defective substantive paradigm (associated with a special syntactical subclass which we might call "directional") **hap*, **haps*, **hapy*, **hapo*, and **haper*, **hapery*; similarly for *$E^{e}/_{o}p$, etc. These would yield possible verb stems **haper(y)-*, **Eoper(y)-* or **Eopyr(y)-* (with ambiguous yod).

4.1.5. Sophikò /hérðe/, def. /hérða/, pl. /hérðe/, Standard Alb. *herdhe* f. 'testicle' : Avestan *ərəzi* (dual) 'testicles', Arm. *orj* 'virile', Greek ὄρχις 'testicle'.

Vaccarizzo does not use this form. Meyer (p. 151) correctly etymologized the word, remarking "für *erδe*." We may now more satisfactorily posit a Proto-Albanian **hó(:)rdiya*: < **horǵʿ-*. Note the Armenian vowel-initial.

4.1.6. Vaccarizzo /x́eð-/, /x́ið-/, Alb. *hedh-* ~ *hjedh-* 'throw, winnow, fall thickly (of snow)', Sophikò /x́éθ/, aorist /x́óða/ 'winnow', but /híðem/ (medio-passive) 'rush on, climb, threaten' : Greek ἄγω, Arm. *acem*, etc.

The Albanian forms are obviously the result of a cross, but the elements are hard to sort out. Mann (*Lg*. 26, 384, 1950) doubts that these forms are related to OE *sceotan*, Engl. *shoot*, insisting that the latter match the Geg form *hudh* 'throw'. His argument carries no weight since there are other examples for **ew* > Alb. *e*, and *hudh* could just as easily be the old zero-grade. I assume that **sḱéwdo*: 'I throw' and **hóǵeyo*: 'I drive' could have met in the above forms. It is also thinkable that we could have here **hódeyo*:, representing the *s*-less variant seen in Lat. *ad*, etc. (cf. Hoenigswald, *Lg*. 28, 183, set number 8). See Sturtevant *IHL* § 61c. It should be noted that Vaccarizzo and Sophikò /x́/ is from Alb. /hj/, which has been generalized in these forms. For further remarks on the vocalism of this verb see Hamp, *Studies presented to Joshua Whatmough*, 88–9.

4.1.7. *harr*, De Rada (see fn. 7) *të-γar̄* 'prune' : Hittite *arnumi* 'bring', Greek ἄρνυμαι, Arm. *ar̄num* 'take'?

This is doubtful. Meyer (p. 158) compares it to OHG *scëran*, which is quite possible.

If the above suggestion is the source, or fell together with the other, we have **hér-* > Proto-Albanian **hárn(w)o:*.

4.1.8. Vacc. /t-γól/ 'small sticks of brush used for burning', Sophikò /i-hóu/, pl. m. /tə-héʎ/, pl. f. /tə-hówa/, Alb. *hollë* 'fine, thin' : perhaps Gk. ἀλέω, ἄλευρον, ἀλέτριος, Arm. *ałam* 'I grind', *aliwr* 'flour', *aławri* 'mill'.

Albanian would here show the lengthened grade (a common phenomenon in the language) **ha:lV-*. If we may also associate *halë* '(fish) scale, husk, chip', the latter could be **halna:*, or possibly **halya:*. For earlier attempts on these words, see Tagliavini, s.v. *ol.*

4.1.9. There are a number of very basic Albanian words in *h-* which have consistently resisted etymology. Some or all of these may show **h*, but I can find no suitable cognates. They are listed here in the hope that their solution may perhaps thereby be hastened.

Vaccarizzo /γá/, Sophikò /háa/, imperative /há/, Alb. *ha* 'eat' (present stem)
/γékur/, Sophikò /hékur/, Alb. *hekur* 'iron'
/γúðer/, Sophikò /húðərə/, Alb. *hudhërë* 'garlic'
/γú/, Sophikò /húu/, def. /húri/, Geg *hû*, def. *hûni* 'stake, peg'
/γúd̃/, Sophikò /húndə/, Alb. *hundë* 'nose'

It has been suggested (Meyer p. 153) that the last two are related. They can be tentatively reconstructed to **hún-* and **húnta:*, respectively. Beyond that, however, one is reduced to mechanical reconstruction. Forms like **húdVno-* and **húdVnt-* (a participle?) might seem possible, both containing an element **hwd-* meaning something on the order of 'projèct'; but I think they are ruled out because the form for 'nose' in Sophikò (Greece) has a short syllabic. Perhaps we might consider **hun-* as meaning '*ìnsert' and related to the base of *hŷj* (§ 4.1.2a). Then **hunta:*, as an old neuter plural, could be '*nostrils' < '*entrances'.

hekur was compared by Meyer to Skt. *siñcáti* 'pours' and reconstructed as **soikros*, but this was rejected by Pedersen (see Tagliavini, p. 112, s.v. *ẹ́kur*). It is tempting in the light of the present thesis to account for the *he-* as < **hay-* < **hey-*, and to try to link this with the family represented by Goth. *aiz*, but the need for clarification of the rest of the form makes this at best merely a suggestive line of enquiry.

4.1.10. Vaccarizzo /b̃i/, /b̃-/, Alb. *mbi*, *mbë* 'on, at' : Gk. ἀμφί 'around', Arm. *amb-ołǰ* 'complete'.

If this comparison is correct and the Armenian development is undisturbed, the Armenian vowel-initial might point to **h*. In that event, it would seem that Albanian **h-* is lost when the initial unaccented syllable is syncopated. This is quite in accord with the structure of the language, since initial clusters beginning with *h* do not occur. We therefore may consider **hémbʻy* ~ *hmbʻý*. However, the development of initial laryngeals in Armenian is so ambiguous that initial **x* is not here excluded.

4.1.11. It might be profitable at this time, now that a new value has been proposed for Albanian *h-*, to review briefly the supposed sources of this phoneme:

(1) loans: a) Turkish : e.g. *han* 'inn'[15]
b) Greek : e.g. Vaccarizzo /γaré/ 'joy', Sophikò /harée/ < *χαρία Spezzano Albanese *harépsemi* 'we rejoice' < *χαρευσ-
c) Artificial Latin : e.g. Vaccarizzo /'ér/, Sophikò /hérə/, Alb. *herë* 'time' < *hōra*[17]

(2) IE **sḱ-* and **sk-* : Vaccarizzo /γé/, Sophikò /x́ée/, def. /x́éa/, Alb. *hie* 'shadow' : Skt. *chāyā́*, Gk. σκιά; Vaccarizzo /γǽnza/ 'the moon', Sophikò /hə́nəza/, Geg *hânë* : Skt. *śćandra-*, *candra-*, Med. Breton *cann* 'full moon'

(3) IE **ks-* : Vaccarizzo /γúań/, Sophikò /húań/ 'I lend' Vaccarizzo /-γúay/, Sophikò /-húaj/, Alb. *huaj* 'foreign' : Greek ξένος
Vaccarizzo /γír̄/, Alb. *hirrë* 'whey' (**ksyrna*:) : Skt. *kṣīrá-*, Avestan *xšīra-*, Pers. *šīr*, Mungī *xšīr* 'milk' (Sophikò /x́ír̄a/ 'whey, def.' must show a Hellenized palatal before /i/)

(4) IE **h-*. It has been supposed ever since Gustav Meyer that one source of Albanian *h-* is IE **s-* under certain circumstances. The supporting examples have gradually been whittled away to a point where the sole survivor to my knowledge is *(h)yll* 'star'.[18] Feist (412b) and Walde-Hofmann (*LEW*^{3} 2, 553, 1951) are still helping to keep the myth alive. How the *h-* got there in dialects that have it I cannot with certainty say; it is not the only example in the language of such fluctuation. At any rate, Vaccarizzo, every other village that I know in Italy, and all the Greek enclaves universally, show the form /íʎ/; Sophikò shows /íiw/, pl. /íʎ/. However attractive etymologies look, one cannot in conscience argue for **s* here. It is convenient to leave discussion of the form here and to resume it under what may be the appropriate section below.

4.2. **x*. Before a syllabic, this laryngeal gives zero in Albanian. Evidence:

(1) Vaccarizzo /ǽ-/ 'swells, blows up', Tosk *ënj*, Borgo Erizzo *ǫi̯* : Skt. *ániti* 'breathes', Lat. *animus* 'soul', Greek ἄνεμος 'wind', νήνεμος 'calm', Welsh *anadl* 'breath' – **xán-* (*X-*), Proto-Albanian **án-y/i-*.

Pokorny (*IEW* 39) rejects the association of Armenian *hołm* 'wind'. Apart from other considerations, this form would fit Austin's thesis of Armenian *h-* < **x-*. But this is not the place to discuss the Armenian evidence. The Greek Albanian vocalism represented by Sophikò /áhetə/ 'it swells', aorist /u-áa/, is not clear to me; I should expect /ə/.

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[15] Turkish loans are understandably completely absent in my records from Vaccarizzo, because the speakers settled there about the time of the Turkish invasion of Albania. Lambertz reports a couple of Turkish loans in the Molise villages; they were settled under approximately the same circumstances as Vaccarizzo. From Villa Badessa, a village settled much later than the rest of the Italian colonies, Lambertz has reported several Turkish loans. Moreover, we must beware of forms which the Turks have borrowed early from Greek (and independently of the Albanians).

[16] Cf. *goné* < γωνιά; Jokl *IF*, 44.33. The detailed attestation of this suffix in the Greek enclaves needs to be further studied, and compared with the Italian enclaves.

[17] I happen offhand to find no *h-* from Slavic, but there must be such loans current near the Serbian area. It is just possible that *herë* could be inherited **hayr-*, beside Greek ὥρα < **hyo:r-*.

[18] See Tagliavini, p. 273, s.v. *üel*. Another form *heq*, Tagliavini's *ič* (p. 133), will be dealt with below.

(2) Alb. _ah_ 'beech', Sophikò /áh/ (obsolescent): ON _askr_, OE _æsc_, Arm. _haçi_ 'ash', perhaps Greek ὀξύη 'beech', Maced. ἄξος. ὕλη – *_xásḱ-_ or *_xáks-_.

Note again Albanian zero vs. Armenian _h-_. On the other hand, it can be argued that this belongs under 4.3, in which case the Armenian vocalism would come from the zero-grade.

(3) Vaccarizzo /éʎp/, Sophikò /élp/, Alb. _elb_ 'barley, sty (in the eye)' : Greek ἄλφι – *_xalbʿ-y_.

It is tempting to compare the first part of this form with Hittite _ḫalki-_ 'Korn, Getreide'.[19] For Acquaformosa, Jaberg-Jud ALI gives _hę̇łbəza_ 'orzaiuolo'; I cannot explain the unexpected initial.

4.2.1. *_xw_. Before non-syllabic *_w_ the laryngeal appears not to have disappeared in Albanian. The evidence is slender.

(1) Vaccarizzo /γéʎḱ/, Sophikò /héʎḱ/ ~ /héʎḱiń/, aorist /hóʎḱa/, Alb. _heq_ 'pull' : Hom. ἑλκέω, ὦλξ, ἄολξ 'furrow', Greek ἕλκω, ὁλκός, -ή 'ploughed furrow', Lith. _velkù_, OCS _vlěkǫ_ 'pull', Arm. _helg_ 'langsam, träge' – *_xwélk-_, Proto-Albanian *_xwól-keyo_: : Lat. _sulcus_ 'furrow',[20] OE _sulh_ 'plough' – *_sw(o)lk-_.

On the basis of the non-Albanian evidence Sapir[21] reconstructed what I write as *_xwélk-_. This formulation accounts for the Albanian much better than previous explanations involving *_s-_.[22] If Alb. _hullí_ 'furrow' goes back to this same base, Proto-Albanian *_ul-V-_ (< *_xwl-_) would seem to have been conflated with the above form.

The _s-_ forms appear to reflect an alternation *_xw-_ : *_sxw-_ of the sort discussed by Hoenigswald in the article already cited.

(2) Alb. (_h_)_yll-_ 'star' : Gk. Dor. ἀέλιος, Lat. _sōl_, Welsh _haul_, Bret. _heol_, Goth. _sauil_, Lith. _sáulė_, Latv. _saũle_ : OIr. _súil_ /šu:l′/, Skt. _sū́raḥ_ : Ved. _súvar_, Avest. _hvarə_.

Though the Greek and Italian enclaves agree in showing a vowel initial (see above), there is fluctuation in Albania, which may require a more penetrating explanation; for example, Dushmani has _hýël_, while neighbouring Malagjia has _ýël_. The following train of reasoning is offered as a possibility.

The Gothic, Greek, and British Keltic forms point to something like *_saAwel_; according to Martinet (_Word_, 9, 262–3 [1953]; _Économie_ 226–7) this would be *_seA_^{w}_el_. The Lithuanian and Lettish give *_s'áulẽ_; Scherer (_Gestirnnamen_ 48) cites Bezzenberger's and Trautmann's *_sāu̯eli̯ā_ and Specht's *_sauli̯ā_, but a better formulation would be *_sāul_(_i_)_jā_, or *_saAwl-yaA_.

Avestan _hvarə_ is not decisive, but Vedic _súvaḥ_ (_svàḥ_) is clearly *_swAel_; Martinet's *_s_^{o}_A_^{w}_l-_ may perhaps represent an earlier stage. Thus, the gen.-ablative _svàḥ_ is *_swAels_, the dative _sūré_ is *_swAléy_, while _sū́raḥ_ = Av. _hūrō_ and OIr. _súil_ represent

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[19] Friedrich, _Hethitisches Wörterbuch_ (Heidelberg, 1952), 47b.

[20] See _LEW_^{3} 2,627 (1952).

[21] "Glottalized Continuants in Navaho, Nootka, and Kwakiutl", _Lg._ 14. 248–74 (1938); Mandelbaum's reprint (_Selected Writings of Edward Sapir_), p. 246.

[22] See Tagliavini, p. 133, s.v. _ič_.

*_swAl-_. Gāth. _x^{v}əng_ points to *_sw(A)en-s_, while Germanic *_sun-nōn-_ would be reshaped.

Lat. _sōl_, with its _o_-vocalism looks clearly like Martinet's *_seA_^{w}_l_, or perhaps *_sweA_^{w}_l_.

Serbian _sûnce_ is ambiguous. We find the circumflex from the dropping of jers in _sȑdâšce_ (*_sŕdьčьce_) and _zȓnce_ (*_zŕnьce_ : _zȑno_). Indeed, the pattern is productive: Ragusavecchia _gȁnač gânča_ 'il gancio', _pȍrat pôrta_ 'il porto' (M. Deanović, _Studia romanica et anglica Zagrabiensia_ 5.12 and 14, 1958). Presumably _sȑce_ syncopated, perhaps by assimilation of the dentals (*_sŕdьce_), before the lengthening took place; I cannot explain _gȑoce_ (*_gŕlьce_ : _gȑlo_). On the other hand, Slovene _sôlnce_ matches _dôlg_ 'debt' and not _dólg_ 'long'; similarly, Czech _slunce_ matches _dluh_ and not _dlouhý_ (with _lu_, _lou_ < l̥̑ after dentals). Thus from the accents attested and the short Czech vocalism we reach *_sь́lnьce_. This would in turn be a neo-circumflex by Lehr-Spławiński's metatonie before jer; therefore, we have older *_sь̑lnьce_ < *_súln-ik-_ < *_sūln-ik-_, or *_suXln-_. The latter schematic shape would be a contamination of *_swAl-_ and *_swAn-_.

A. Vaillant (_BSL_ 46.48–53, 1950) arrives directly at *_sь́ln-_ (with acute), on the basis of the South Slavic forms, by comparing Čakavski _súnce_ and the rare Štokavski gen. pl. _sȕnācā_. He argues that Slovene _sôlnce_ is not displaced like _vôlk_, _volkâ_; but the latter is not strictly comparable, since it had no medial jer. He also posits *_sūl-_ plus derivative _-no-_; that is possible, but not necessary.

The above cognates, then, yield (apart from the _l/n_ alternation) *_saAw(e)l-_, *_swA(e)l_. Even though these may in turn go back to Martinet's *_seA_^{w}_l_, they must be posited at least as allomorphs, on the IE level, in a single ablauting paradigm.

Now, if we view the initial as _s_-mobile, we would also have the allomorph pair *_Awel-/wAl-_. If *_A_ was *_x_, then *_xwel-/wxl-_ would give Proto-Albanian *_hel-/u:l-_ according to the above thesis. This could have produced the analogical alternation *_hu:l-/u:l-_, yielding the observed _(h)yll_.

Now, on the other hand, Alb. _diell_, Vaccarizzo /díel/, Sophikò /díew/ 'sun', must go back to an apparent *_swelV-_, with the development of initial *_sw-_ to _d-_; cf. _dirsë_ 'sweat' < *_swídrVtjā_. In that case, we have either an earlier analogical formation, with a new ablaut, or else the laryngeal dropped without trace in *_swAel-_ (see above) > *_swel-_.

If the above reasoning is correct, *_xw-_ and *_h-_ seems to have yielded similar results in Albanian. This might point to a lip-rounded articulation for *_h_ (or at least some "_h_"s). This brings us to the task of considering the merits of Householder's *φ and allied notions stemming from Martinet's _A_^{w}, together with the arguments of phonemic patterning and spirant interpretations of the laryngeals; see Householder, _AJP_ 78, 435, 1957. But that would take us far beyond the scope of the present paper.

4.3. *_γ_. Before syllabic this laryngeal appears to give zero in Albanian. Evidence: Vaccarizzo /ašt/, Alb. _asht_ 'bone' : Hittite _ḫastai_, Luwian _ḫassa-_, Arm. _oskr_, Greek ὀστέον – *_γóst-_.

From the Hittite evidence the laryngeal must be **x* or **γ*. From the *o*-vocalism, it is best to consider it **γ*, though the lack of *h*- in Armenian is disturbing.

4.3.1. **γy*.[23] */#γy/ > Alb. /#ǵ/. Evidence:

(1) Sophikò /ǵéšiń/ 'gird', /zǵéšiń/ 'ungird', Alb. *n-gjesh*, Dushmani *ńéš* (with **n*-), *ǯéš* (without **n*-), *žǯéš* 'disarm': Gk. ζωστός, Lith. *júostas* 'girt'. – **γyoγs*-, Proto-Albanian **γyo:s*-. For previous discussion of this item see Sturtevant (*HG* sect. 75) and Lehmann (*PIEP*, sect. 10.4a), though the assignment of the Anatolian items to this set is doubtful.

(2) Vaccarizzo /ǵéšmi + búkt/ 'we knead the bread', Sophikò /ǵéšiń/ 'knead', Alb. *gjesh* : Greek ζέω 'seethe', Alemannic *jesan* 'ferment', Engl. *yeast*, Toch. A *yäs*- 'boil'. – *γyes*-. For previous discussion see Lehmann (*PIEP* sections 10.5, 10.4d, 7.6).

(3) Geg *gjanë* 'alluvial mud',[24] Tosk *gjër*[25] 'soup' : Gk. ζύμη 'dough', Lith. *jūšė* 'poor soup', OPruss. *iuse* 'meat broth', OCS *juxa* (> Mod. Germ. *Jauche*), Skt. *yūṣán*, Finnish *juusto* 'cheese' (< Gmc., cf. ON *ostr*), Lat. *iūs* 'soup' – **γyew-X*-, Proto-Albanian **γye:(w)n*- (?). For the non-Albanian forms see Lehmann (*PIEP* sections 10.4e, 10.5). Because of the ambiguity in the Albanian forms it is difficult to be sure of the vocalism for these.

(4) Vaccarizzo /ǵéǵ-/, Sophikò /ǵíǵem/, aorist /ǵéjšə/ 'hear'; in various dialects 'hear, obey, follow, consent, reply'; Alb. *përgjegj* 'answer' : Swabian *jagə/jaxə*, Swiss *jage*^{n}, Bavarian *jagen* 'hunt'[26] – perhaps Proto-Albanian **γyógʿeyo:*.

Meyer (p. 67) paired these forms with the whole complicated group which we may now attest by *(n)dëgjonj* 'listen', Dushmani *nigi̯úe*, Borgo Erizzo *diṅgúa*, E. Geg (Tagliavini) *(n)digue* (with reflexes of **gl*), Variboba *ndiglgòn* /ndiʎgón/, Barile /dɪlɪgɔ́ń/ 'capire', and which he derives from Lat. *intelligere*, by assuming assimilation of initial *ǵ* to the medial *ǵ* < **gl* < **lg*. The occurrence of such forms as *upërǵeḱ* 'he replied' in Piana degli Albanesi and *ǵeǵet* 'hears' in the book of Buzuk (1555), both of which regularly preserve old *gl* clusters as do the Greek Albanian dialects, makes this impossible; furthermore, we find in the Molise dialects of Italy (Lambertz) *gligón* 'verstehe', beside *ǵeǵ* 'höre'.

Perhaps we may see this same base in Alb. *gjā* f. (**γyogʿeA* : OHG *jagōn*) 'hunt', *gjanj* 'I pursue', *gjuaj* 'I pursue', where it could have been crossed with forms from *g^{w}ʿ*en*- (: Slav. *goniti* 'hunt').

4.3.2. For a long time now it has been customary to regard /ǵ/ as the normal development of IE **y* initially, and that may well be true. But laryngealists have also argued that there may have been no simple *y* after juncture in IE. We have just seen that all the above Albanian instances of /ǵ/ which may go back to **Xy*[27] match evidence elsewhere that has been claimed for **γy*; but these could equally well be simple **y*-.

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[23] This section and the following one are presented essentially as they were written in 1952, so that they may be compared with Minshall's treatment of the matter, *Lg*. 32, 627–30, 1956.

[24] Recorded for Berat dialect by Kristoforidhi, Λεξικὸν τῆς 'Αλβανικῆς γλώσσης (Athens, 1904), p. 76.

[25] Pedersen, *Vergl. Grammatik der keltischen Sprachen* (Göttingen, 1909), 1.65 (§ 44, Anm. 2).

[26] *Schwäbisches Wörterbuch* 4.59; *Schweizerisches Idiotikon* 3:15; Schmeller, *Bayerisches Wörterbuch* 1. 1203. Further possible connexion with Skt. *yahú* and Greek ἀζηχής (v. Kluge-Götze[14] 265b s.v. *Jagd*) remains uncertain.

Though most instances of inherited vocabulary in *j*- go back to older accented initial **e*- (see below), it was earlier thought that Alb. *j*- could also represent IE **y*-. Pedersen however argued[28] that such cases were older vowel-initials with a developed "hiatus-*j*." There is one case, at least, where we may wish to reconsider:

Vaccarizzo /yú/, Alb. *ju* 'you (plu.)' perhaps : Lith. *jús*, Goth. *jus*, Gk. ὑμεῖς, Toch. B *yes*, Toch. A *yas*. Meyer (p. 163) related these forms as shown (minus of course the Tocharian dialects). It is a pity that the Hittite form is not attested. Pedersen derived *ju* from **u* : **wos*. From the vocalism it appears that the Tocharian forms get conflated with the oblique case; the same may well hold for the Greek and Albanian. If so, perhaps we may see more than just an oblique form in the Greek, and if this is true the Greek and Albanian initials (rough breathing : *j*-) become significant. It is possible that as in Greek ἅγιος: Skt. *yaj*-, pple. *iṣṭá*-, we have here an initial **Hy*-. If the puzzling Armenian oblique forms in *je*- (i.e. [dze-]) also belong here, we may have a further correlate in Armenian: **Hy*- > Arm. *j*-; **γy*- or **y*- > Arm. *ǰ*- [dž-] (cf. *ǰanam* 'I try' : Greek ζῆλος, Dor. ζᾶλος).

4.4. *ʔ. This laryngeal gives zero in Albanian. Evidence:

(1) Vaccarizzo /yám/ 'I am', /ǽšt/, Sophikò /ištə/ 'is', Geg *jam*, *âsht* : Engl. *am*, Hittite *esmi* 'am', *eszi* 'is', *asanzi* 'they are', Skt. *ásti*, *sánti*, Germ. *ist*, *sind*, Osc.-Umbr. *est*, *sent*, Hieroglyphic Hittite *a-s*(*i*)-*t*(*e*) 'he was' – **ʔésmy*,* *ʔésty*, **ʔsénty*.

It is not known under what conditions **é* > *yá* instead of **ie* (> *yé* ~ *ie* ~ *i*); the vowel in the 3 sg. is obscure. But the forms are clearly **e*(*s*)*m*, **Vst*-.

(2) Vaccarizzo /ím/, Alb. *im* 'my (masc.)' : Hittite *amug* 'me', Hieroglyphic Hittite *amu* 'I', Lycian *ẽmu* 'I, me(?)',[29] *ẽm*- 'my', Lydian *amu* 'I, me',[30] *ẽm*- 'my',[31] Arm. *im* 'my', Gk. ἐμοῦ, Gaulish *im*- 'my'[32] – **ʔem*-, **ʔm*-.

The initial is discussed on the basis of Hittite and Greek by Sturtevant (*HG* §§ 169, 170c). Because of their isolation and because of the possibility of different accent (enclitic) conditions, it is difficult to be sure of the vocalic development in all of these forms; it is therefore hard to say which grade of vowel originally applies.

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[27] There are, of course, other sources of /ǵ/: **s* immediately before stressed vowel (Vaccarizzo /ǵák/ 'blood' : Serb. *sôk*, gen. *sȍka*); **g*(*h*) before front vowel (Vaccarizzo /ǵǽń/ 'I find' : Lith. *pa-si-gendù*); Lat. *g*, Turk. *g*, Greek γ before front vowel (Vaccarizzo /ǵíã/ 'people' < *gente*(*m*)); Lat. *j*- (Alb. *gjyq* /ǵǘḱ/ 'judgment' < *iudicium*). Most Albanian dialects have /ǵ/ where a few still retain /gl/ (Vaccarizzo /ǵú/ Barile /gl'ú/ 'knee' : OIrish *glún*; Vaccarizzo /ǵát/ Barile /gl'át/ 'long' < **dlakt*- : Hittite *dalugaes*, OCS *dlъgъ*). Virtually all the Greek Albanian enclaves retain /gl/.

[28] "Bidrag til den Albanesiske Sproghistorie", in *Festskrift til Vilh. Thomsen* (København, 1894).

[29] Pedersen, *Lykisch und Hittitisch* (København, 1945), section 28.

[30] Friedrich, *Kleinasiatische Sprachdenkmäler* (Berlin, 1932), p. 117, 23.6, 8, and 14.

[31] Friedrich, *op. cit.*, 23.19 (here in accusative: *ẽm*(*nu*)).

[32] Whatmough, *Lg*. 25, 391 (1949). For *gabi buððutton imon*, instead of 'give me a kiss' (lit. 'my kiss'), I should prefer to read 'take my kiss', and compare *gabi* to OIr. *gaibid* /gáv́að / 'takes'.

(3) Alb. *inj* ‘up to’; Vaccarizzo /ń-éra/ Sophikò /ńérə/ ‘up to’ < **eny* + (Lat.) *hōra* : Greek ἐν, ἐνί ‘in’, Arm. *i*, etc. – **ʔen*, **ʔény*.

Presumably in ablaut with Vaccarizzo /vǽ/ ‘put’, OCS *vъ* ‘in’ < **ʔon-* (see above 4.1.4b).

(4) Alb. *ndër* ‘among, between’ : Lat. *inter*, Arm. *ənderkʿ* ‘intestines’, OCS *jętro*[33] ‘liver’ – **ʔnter* (: **ʔéntr-*).

Sturtevant (*HG* § 63a) relates Hittite *andurza* ‘within’ to these; for reasons which I have stated (*BSL* 50, 44–6, 1954) I prefer his older identification **ʔn-dʿwr-* (with syllabic *w*), which still appears in *HG* § 84. Oscan-Umbrian *anter*,[34] OCS *ǫtrь* ‘within’ (if the latter is not *o*-grade, like *vъ*) might represent a different syllabification of **ʔn-* from that of Latin; one can of course choose to regard *an-* as the regular Oscan-Umbrian development of **ʔn-*. Czech *vnitř* ‘within’ (**vn-jutř*) matches OCS *vъnǫtrь*.

(5) Vaccarizzo /d̃-/ ‘in’ (e.g. /d̃špít/ ‘at home’), Alb. *ndë* : Hittite *anda* ‘in’, Hieroglyphic Hittite *a*^{n}*da*, Lycian *ñte*, OLat. *endo*, – **ʔndo*; or : Greek ἐντός, Lat. *intus* – **ʔen-t-*.

The initial laryngeal is assumed by Sturtevant (*HG* § 63a).

(6) Vaccarizzo /érða/ ‘I came’, /árður/ ‘come (pple.)’, Geg *erdha*, *ardhun* : Greek ἔρχομαι ‘I go’, OIr. *eirg*(*g*) /èrǵ/ ‘go (2 sg. impv.)’. – **ʔérǵʿ-*, **ʔorǵʿ-*.

The assumption here is that these are related, by an extension *-*ǵʿ*-, ultimately to Hittite *ar-*, *er-* (see below). One must suppose that it is by analogy with *arð-* that the expected diphthongization of **yerð-* was levelled out.

(7) Alb. *épërë* ‘upper’ : Greek ἐπί, Arm. *ew* (?).

If this etymology is sound (Meyer p. 96), it is hard to explain the absence of diphthongization in the *e-*, or else we have the unlikely ablaut grade **o*:. Perhaps a better comparison is with Gothic *iup* (see E. P. Hamp, *MLN* 39–41, 1954), in which case we have **Eewp-*.

(8) Vaccarizzo /-at/ ‘father’, Alb. *at* : Hittite *at*(*t*)*a-*, etc. – **ʔát*(*t*)- (??).

This comparison is by no means new. But the reconstruction furnished is neither familiar to traditional formulations nor the typical situation envisioned by laryngeal theory. It may still, of course, be objected that this set of words is to be regarded as Kindersprache or the domain of Lallwörter. But there is good reason to object that we must be prepared to deal systematically with all correspondences that force themselves on our attention.

It is possible to envision in these words the systematic impingement of another cultural (paralinguistic) system on the linguistic. Thus, we might schematically posit for IE something like G = tense gemination and A = open vocalism (perhaps accounting for some of Meillet's “plebeian” *a*, as well as Lallwort vocalisms). Then our form would be */^{GA}ʔVtV^{GA}/, with a phonemic vocalism hard to specify. But this is in the realm of speculation.

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[33] Serbian *jêtra* shows the place of the accent in PSlav. **ję̂tro*, and also shows by the circumflex that we do not have **ʔńX-*, which would give Balto-Slav. acute, but it does not with certainty show the vowel-grade (**ʔéntr-* or **ʔńtr-*).

[34] Buck, *A Grammar of Oscan and Umbrian*^{2}, 1928, sect. 98c and pp. 356–57.

Meantime, since I assume that phonemic */a/ must be posited for IE (see *Lg*. 33, 530–1, 1957), the sequence */ʔa/ is quite plausible.

4.4.1. **ʔr*. Most conservative dialects of Albanian have two *r*-phonemes; Vaccarizzo and Sophikò both have /r/ and /r̄/. The assignment of loans to one or the other phoneme is a complex question that has not yet been satisfactorily worked out, and which need not trouble us here. Non-initially, inherited **r* produces, to state matters very generally, /r̄/ as the result of certain clusters, /r/ otherwise (when the older adjacent phoneme is preserved). Initial "r" has, however, always been a riddle in Albanian; there is a fair number of very common Albanian words in *r*- and in *r̄*-.[35] We are now in a much better position than Meyer or Jokl to see why there has been such difficulty (though confessedly we are still not swamped with etyma that leap into view). As Lehmann has shown,[36] IE had bases beginning with **wr* **sr*, and **Xr*, but apparently none in **r*. In other words, the sequence juncture plus **r* probably did not occur in IE. Whatever the fate in Albanian of **wr*-[37] and **sr*-, with four laryngeals there is plenty of room for differentiation in the case of **Xr*-. A first attempt at one set of forms is offered here:

(1) Vaccarizzo /r̄í/ 'stand, remain, be (in a state)', Sophikò /r̄ii/, imperative /r̄í/, Barile /r̄ía/, Alb. *rri*, Buzuk (1555) *rrie*.

(2) Vaccarizzo /r̄óń/ 'last', Sophikò /r̄óń/, Alb. *rroj*, *rrnoj* 'exist, live', *rroftë* 'long live, viva!'

(3) Vaccarizzo /r̄ǽń/, aorist /r̄úra/ 'reach, overtake', Geg *rrâj* 'visit'; Sophikò /ar̄ə́əń/, aorist /ar̄ə́əjta/ must represent a conflation with another verb (< *arrivare*?).

(4) Vaccarizzo /r̄íń/ 'grow', aorist /r̄íta/, Sophikò /r̄íń/, aorist /r̄íta/ 'bring up, rear', /r̄ítem/, aorist /u-r̄íšə/ 'grow up', Alb. *rris* 'I grow', *rrit* 'grows' : Skt. *r̥dh-nóti* 'thrives'.

All four may be related to Hittite *ar*-, *er*- 'arrive' (active), 'stand, continue' (middle), Skt. *r̥ccháti*, pf. *āra* 'go, send', Greek ὄρνῦμι, etc. Suggested original forms, which are difficult to guarantee in all respects:

r̄í- < *ʔr*- (*ri* is the usual development of **r̥*)
r̄óń < *ʔreX*- plus familiar verbal *n*-suffix
**r̄áń* < *ʔrX*- plus familiar verbal *n*-suffix (?)
r̄íT < *ʔr-dʿ*- (both with and without *n*-suffix)

4.5. */hw/ or */ʔw/. A couple of Albanian forms have cognates which clearly involve a laryngeal initially, but the exact laryngeal cannot be stated with certainty.

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[35] One possible solution is to assume that /r̄/ originates in IE "initial" **r*, while /r/ reflects the Albanian loss of original initial unstressed vowel.

[36] *Lg*. 27, 13–17 (1951).

[37] I think it likely that Albanian shares with Balto-Slavic the loss of **w* in **wl*- that Lidén observed (*Ein baltisch-slavisches Anlautgesetz*, Göteborg 1899). It is therefore likely that old **wr*- may give yet another source for the split in the **r* phoneme.

(1) Vaccarizzo /véš-/ ‘dress’, Alb. _vesh_ : Hittite _wes-_, Greek ἕννυμι, Hom., Att-Ion. εἷμα, Lesb. ἔμμα, Cret. ϝῆμα (_FEMA_), Toch. B _wässāte_ ‘he dressed’, Toch. A _wse_ ‘I dressed’, Skt. pf. _vāvāsa_.

A laryngeal is guaranteed by the Greek and Skt. forms. If it were *_xw_, we should expect Hittite _ḫw-_ and Toch. B _y-_; cf. Hittite _ḫwantas_, Toch. B _yente_, Toch. A _want_ ‘wind’.

(2) Vaccarizzo /vyéθ/ ‘I steal’, Alb. _vjedh_ : Skt. _vah-_ (samprasarana pf.), Toch. B _yakne_, Toch. A _wkäṃ_ ‘manner, way’, etc.

If we have *_xw_, the Albanian result conflicts with _yéʎḱ_ above (4.2.1); if *_hw_, Vaccarizzo /úð/, Alb. _udhë_ ‘road’ (_not_ *_hudhë_), which has been plausibly suggested as a cognate, cannot be related (though _udhë_ may equally well be related to Lith. _vedù_, OIr. _fedid_); if we have *_ʔw_ here, then _véš-_ above must be *_hwés-_. We could of course have *_γwéǵʿ-_. But if *_γ_ was lip-rounded, would it occur before *_w?_

4.6. Laryngeal uncertain and vanished. We know from other languages or may believe for structural reasons that the following forms once contained laryngeals.

4.6.1. *ʔ or *γ. Forms with _e_-vocalism, with _o_-vocalism, or excluding _A_:

(1) Vaccarizzo /yéter/ ‘other’, Alb. _t-jetër_ ‘the other’ : Umbrian _etro-_, OCS _jeterъ_ – *_Eét(e)r-_.

(2) Vaccarizzo /yášt/ ‘outside’, Sophikò /jáštə/, Alb. _jashtë_ : Locr. Delph. ἔχθος (*_ekstos_), beside ἐκτός, OIr. _echtar_, Med. Welsh _eithyr_ (*_ekter_) – *_Eeḱstos_.

(3) Vaccarizzo /émer/ ‘name’, Sophikò /émərə/, def. /éməri/, Geg _emën_ : OIr. _ainm_^{n} /_ànmʻN_/, OCS _imę_ – *_Eńmen_.

The _e_-colouring is guaranteed by OPruss. _emnes_ (*_Enmnes_); the zero-grade by the absence of diphthongization in the Albanian forms.

(4) Vaccarizzo /véš/ ‘ear’, Alb. _vesh_ : Gk. οὖς (Dor. ὦς exactly = _vesh_), Arm. _unkn_ – *_EóXws-_ > Proto-Alb. *_ó:(w)s-_.

For the development within Albanian, cf. Vaccarizzo /váʎ/, Tosk _vaj_, Geg _voj_ ‘oil’ < Lat. _oleum_, and _ve_ ‘egg’ below. Martinet has proposed his A^w for this etymon.

(5) Vaccarizzo /vé/ ‘egg’, Sophikò /vée/, def. /véa/, Alb. _ve_ : Gk. ᾠόν, Lat. _ōuum_, etc. – Proto-Alb. *_ǻwy-_ from apparent *_Aēw-_ or *_AeA_^{w}_y-_ (< earlier *A^w- ?); see Hamp, _Word_ 11, 400 (1955).

(6) Vaccarizzo /úy/ ‘water’, Sophikò /újə/, Alb. _ujë_: Hittite _wadar_, etc. – *_Eẃd-_ : *_Ew(é)dr_, *_Ewdr-yaA_. Here the absence of Alb. _h-_ and Hitt. _ḫ-_ eliminates *_h_ and *_x_.

4.6.2. *ʔ or *γ or *_x_.

(1) Vaccarizzo /úʎk/ ‘wolf’, Alb. _ujk_ : Lith. _vil̃kas_, etc. – *_Xẃlk_^{w}_os_ : *_Xwĺ̥k_^{w}_os_. It is possible that the Albanian represents *_(X)wĺ̥k_^{w}_os_ > *_wúlk_^{w}_os_ > *_úlk-_, with development of *_l̥_ > _ul_ parallel to *_n̥_ in _mund_ ‘be able’ : Lith. _iš-mintìs_, and subsequent loss of *_w_ before *_u_.

(2) Alb. _arë_ ‘field’ – see Hamp, _KZ_ 75, 237–8 (1958).

4.6.3. *_X_ plus non-syllabic. A couple of clear, but unclassifiable, cases occur.

(1) Vaccarizzo /myeʎ/ 'I milk', Sophikò /mńél/, aorist /móla/, Alb. *mjel* : Greek ἀμέλγω, Skt. (pf.) *māmr̥jur* – **Xmélǵ-*.

Somehow, probably in cluster-combination with suffixes, the Albanian has lost the expected **ð*.

(2) Vaccarizzo /g̃réu/, Sophikò /grú/ 'get up!', Vaccarizzo /g̃rǽ/, Sophikò /gríij/ 'raise!', Sophikò /u-gréšə/ 'I got up', Alb. *ngre*, *ngrêj*, Sophikò /gríiń/ 'I raise' : Greek ἐγείρω, νήγρετος, Ved. *jāgarti* – **(ʔen-)Xgre-/Xger-*; Alb. *ngreh* 'I raise' is **ʔen-XgrV-sḱ-o*:. The detailed vocalisms of these are very difficult.

4.7. Medial Laryngeals. Traditional "long vowels" that are traceable to laryngeals are not dealt with in this paper, since their interpretation would be the same as that for any IE language; there are still a number of aspects of Albanian vocalism that badly need cleaning up, but it is unlikely that the use of laryngeals will improve the old difficulties in this respect. There are, however, a few cases of probable prevocalic laryngeals that may briefly be noted here.

(1) Vaccarizzo /b̃ul-/ 'to close', Sophikò /bíwiń/, aorist /bíiwta/ ~ /bíwa/, Alb. *mbyll*:

(a) if to Greek εἰλύω 'wrap, cover', Skt. *vr̥ṇóti*, Lat. *uoluo* – **γwél-*, **γwl-*.

(b) if to Greek εἴλω, εἴλω 'shut in' – **xwel-*, **xwl-*.

The laryngeal would be lost after *mb-* 'in, around' (see 4.1.9 above) in close juncture.

(2) Vaccarizzo /b̃ít/ 'drown', Sophikò /bítiń/, /bítem/ (medio-passive), Alb. *mbys*, *mbyt* 'drown', *zhys*, *zhyt* 'immerse', perhaps : Skt. *unádmi* 'I wet'.

By stripping off the prefixes *mb-* and *zh-* /ž-/ we obtain *-ýT*, which may be reconstructed (via **-ýz*, **-ýd*, by very common devoicing) **-údyo*:, **-údi:t* (3 sg.). This could then contain the base **Ewd* 'water'.

For Scutari (N. Geg), Lowman shows /mỹs/ 'I kill', with a nasal vowel. This could perhaps be from **mbunz* ~ **mbynd* < **mbV-úndyo*:, etc., with a nasal infix matching the Sanskrit. But it is more likely that the nasality has been recently phonemicized and derives from the allophonics of the emphatically articulated /m/ in these dialects.

(3) Sophikò /šúr̄ə/ 'urine' (≠ /súur/ 'sand'), Alb. *shur* ~ *shurr*, *shurrë* : Hittite *seḫur*, etc. – **seγwr*.

Jokl (*Stud. z. alb. Etym.*, p. 89), following Pedersen (*KZ* 36, 281), remarks that Albanian *š-* would not arise before an original back vowel. His proposed etymology of Lat. *ex-* or IE **sm̥-*, plus **ur-n-* (: Gk. οὖρον, οὐρέω > Lat. *ūrīna*, ON *úr* 'fine rain', Lith. *júrės* 'sea') seems, however, as forced as those it is designed to replace (viz. Meyer's comparison with OHG *sūr* 'sour', OCS *syrъ* 'cheese', and Pedersen's derivation from Lat. **exurinari*).

If we compare the Hittite form, an interesting implication appears to present itself. Ignoring the *r̄*, which may reflect a later suffixation, our form seems to require a disyllabic reconstruction, since a stress immediately following **s-* would lead us to expect *ǵ-* in the present form (see fn. 26). With that premise, a front vowel in the first syllable would give the resultant *š-*. Therefore Proto-Albanian **se(X)úr-* <

seγẃr would fill the requirements. This seems, in turn, to imply that at least some intervocalic laryngeals remained in Albanian for some time; otherwise it is difficult to see how a monosyllabic **séwr-* would not have arisen.

(4) Vaccarizzo /mář/ 'I take', /móra/ 'I took', Sophikò /mář/, /móra/, Alb. *marr*, *mora* : Arm. *aṙnum* 'I take', *aṙ* 'he took', Greek ἄρνυμαι, aor. ἀρέσθαι – **(s)med-hárno*:

See 4.1.7 above. The assumption here is that the particle *me* (**med*) 'with' formed a compound with **hárno*:. Note the parallel *n*-present formations. The aorist would have been **ha:r-*, the familiar Dehnstufe of Albanian aorists. This etymology is, however, offered very tentatively.

The particle *me*, incidentally, has not, I think, been associated with its nearest cognates heretofore.[38] I associate it with Skt. *smat*, Avest. *maṯ* /mad/ 'with' < **(s)med(h)*. According to Feist (s.v. *miþ*), Kluge-Götze[14] (s.v. *mit*), and Boisacq (s.v. μετά), the Germanic and Greek forms are not to be directly related to these.

Another possibility is that the base here is **xar-* and that the compound is to be compared rather with Hittite *pe-ḫarzi* 'carries'.

4.8. Evidence against the argument. To present the evidence fairly, we must now list all the forms that have been found which argue against the thesis. Since a fairly thorough canvass was made of the up-to-date reference works, it would seem reasonable to suppose that in so far as a representative number of additional instances was found in support of the argument, those antithetical cases which were turned up should also be a fair sampling. Such cases are:

(1) Alb. *edh* 'kid' : Greek αἴξ, Arm. *ayc* > **Aáyǵ-*? The possible difficulty in this case is that neither Albanian nor Armenian shows *h-*; in principle, therefore, if we were to follow Austin's thesis, we have neither **x-* nor **h-*, yet we find *a*-vocalism.

This is not however, the only problem with this form, since Pokorny says (*IEW* 13) "vielleicht orientalisches Kulturwort." It is also thinkable that the Albanian form could have lost its *h-* by analogy with *dhī*, Vaccarizzo /ðí/ 'goat', if indeed the latter is related to Lith. *ožỹs*, OPruss. *wosee*, Skt. *ajáḥ*, and not to Germ. *Ziege*, OHG *ziga*. Finally, *edh* has been considered a loan from Lat. (*h*)*aedus*, but this seems dubious since from a popular Latin /ę̄du-/ we might expect a diphthongized **jedh*.

(2) Alb. *arí* 'bear' : Greek ἄρκτος, Skt. *ṛ́kṣa-*, OIr. *art*, Arm. *arǰ*.

Vaccarizzo has replaced this form with a loan from Italian. Once again, we have Albanian and Armenian both without *h-*. On the other hand there are on record by-forms (presumably dialectal) with *h-* in Albanian, especially for the female bear:

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[38] Jokl, in *Zur Erforschung der albanischen Mundart von Borgo Erizzo in Dalmatien* (= *Archivum Romanicum* 24) (1940), a long critique of Tagliavini's work, relates (p. 32) *me*, with *mjet* 'middle' (< **meto-*) and Illyrian *Metu-* (v. Ebert's *Reallexikon* 1.86.2 and 87.1), to Goth. *miþ* < **meti*. I see no reason for separating these from *m(j)ez* 'middle' (see Jokl, *op. cit.*, p. 33, and the places cited from Tagliavini), which can be derived just as well directly from the widespread IE **med'yos* as from a borrowed Lat. *medius*. Forms such as *mes* and *mjet* would then show the final devoicing familiar in Albanian.

harushë beside *arushë.* If the identification is correct in the Hittite form *ḫartaka-*[39] it would appear, contrariwise, that somehow Armenian has lost its **h-*, if we must assume *a*-vocalism and if we subscribe to Austin's thesis. But again, the Hittite *ar* could be old syllabic **r* (zero-grade); if, before the unusual cluster in this word, we may assume the Albanian to be likewise syllabic **r*, it is then possible to assume the Hittite *h* to be *γ. In that case all forms are in agreement as **γŕtkos*, or IE *γŕtskos*.[40] But, though one is reluctant to separate the Albanian word from this close-knit group, the nature of the connexion remains highly problematic, and the sequence is sui generis.

(3) Alb. *ënde* 'flower' : Arm. *and* 'field' (Pokorny, *IEW* 40). There is the same difficulty as in (1), but it is not at all semantically necessary that these forms be related.

(4) Vaccarizzo /ex́/, Alb. *eh* 'edge (of a knife)', Sophikò /éx́iń/ 'sharpen', Albanian *athëtë* 'sour' : Arm. *aseln* 'needle'.

These forms are supposed to be from the prolific base traditionally reconstructed as **aḱ-* (Pokorny, *IEW* 18–9). Neither language shows *h-*. Moreover, Hittite *aku-* 'spitzer Stein, Klippe',[41] if related, shows no *ḫ-*; on the other hand, the Hittite form shows *k*, and not *s*, before *u* for the IE palatal. I can see no argument around this fact.

To summarize, against thirty-seven different bases that support the argument we find one, and perhaps three or four, that argue against it. And those that appear to argue against it require our acceptance of Austin's thesis on Armenian *h-*, which seems by no means certain to me, or, in one case, involve a poorly attested Hittite word which itself is not free of difficulties.

5. Every now and then we are able to reaffirm the value of painstaking structural analysis by producing a reflex of a feature that was predicted by the pure mathematical properties of the system. Brugmann predicted a Greek optative, and later it was dug up on a new inscription. Saussure predicted "lost consonants" for PIE, and Kuryłowicz identified two such in Cuneiform Hittite a half-century later. Kuryłowicz and Sapir posited an *a*-colouring laryngeal other than the source of Hittite *ḫ*(*ḫ*) without having seen a unitary reflex of it. I propose that we may now see its descendent in Albanian *h-*.

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[39] Friedrich, *Hethitisches Wörterbuch*, 61a.

[40] It is likely that dentals assibilated not only before dentals, but before stops generally. Such clusters would account for most of the instances of Brugmann's dental-spirant. In any event, from their distribution and frequency and from the gaps in other reconstructed cluster distributions, it is clear that these were not phonemic units, as Benveniste would have them.

[41] Friedrich, *Hethitisches Wörterbuch*, Ergänzungsheft (1957), p. 1.

EVIDENCE IN GREEK

WARREN COWGILL

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1.0 To my mind, there is relatively little in Greek itself that can be explained better by laryngeal theory than without it. Most of the laryngeal solutions for specifically Greek problems of phonology and morphology that have been proposed in the last 35 years seem to me either no more plausible than competing solutions not using laryngeals, incompatible with better guaranteed developments, or based on so little material as to be incapable of proof.

1.1. The central doctrine of the laryngeal theory[1] is, of course, that the Indo-

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[1] My use of the word "laryngeal" has no phonetic implication. Plausibly the *a*-coloring laryngeal was a velar spirant, and the *o*-coloring laryngeal a velar spirant with lip rounding; **E* might have been a palatal spirant or a glottal stop. When I wrote the 1960 version of this paper, I thought the spirantal laryngeals were probably voiceless. But I now tentatively accept the hypothesis of Austin, *Lg.* 22.109–11 (1946), that at least one of the laryngeals became *k* in Germanic before *w* (under conditions not yet fully worked out; cf. also notes 58 and 72). The Germanic Lautverschiebung suggests that this *k* is from **g*, which in turn is most plausibly from a voiced spirant, [γ] or [γʷ]. Since I am not convinced by any evidence I've seen for distinctive voice in the laryngeals, I am led back to the view of Sweet, *TPS* 1880–1.161, that all the non-occlusive laryngeals were voiced; cf. also T.V. Gamkrelidze, *Xettskij jazyk i laringal'naja teorija* 88 (1960).

European long syllabics (including *ī*, *ū*, **ṃ̄*, **ṇ̄*, **ṝ*, **ḹ*) that do not represent lengthened ablaut grades or result from contraction of two syllables are actually reflexes of old short syllabics (*e*, *o*, *i*, *u*, *ṃ*, *ṇ*, *ṛ*, *ḷ*) followed by CONSONANTAL elements, and not (as Hirt, etc., believed for *ē*, *ā*, *ō* at least) simply uniform long vowels as far back as we can follow the prehistory of the Indo-European languages. Secondary to this is the view that one or more of these consonantal elements changed neighboring *e* to *a*, one or more others changed it to *o*, and a third set had no effect on the color of adjacent vowels.

1.2. The reduction of the traditional six ablaut series to one which laryngeal theory permits is not a strong argument in its favor. Aside from the qualms which reconstruction of a language with only one vowel may arouse, I do not think that the structural simplicity of a single ablaut series compared to six parallel ones outweighs the diachronic complication involved in assuming a set of prehistoric consonants that disappeared in all the historic languages. From a consideration of the monosyllabic bases alone and ignoring Hittite, de Saussure's analysis of Indo-European ablaut would seem valid as either a phonemicization in which components of vowel length and color were extracted as separate phonemes or as an extremely useful morphophonemic interpretation of the material.

It is rather the ablaut of the disyllabic bases that furnishes the most powerful evidence for the laryngeal theory, – evidence that I believe would be sufficient to establish the theory without help from Hittite *ḫ*'s or any of the other sound effects that with more or less plausibility have been attributed to laryngeals. For, as Cuny pointed out, *Revue de phonétique* 2.102, if PIE "*ē*, *ā*, *ō*" were simply long vowels whose weakened grade was a short vowel of undetermined quality, *ə*, it would be hard to see why the reduced grade of a root like **pelə*, *plē* 'fill' is not simply **plə*, so that, in combination with the suffix *-*nó*-, we would get forms like Skt. **priṇá*, SC **plon*, Li. **planas*, Go. **flans*, W **llan*, instead of the actually occurring *pūrṇá-*, *pȕn*, *pìlnas*, *fulls*, *llawn*, forms that seem to require an earlier form of the type **pḹnós*, which in turn becomes understandable only if we suppose that the residue left when the '*ē*' of **plē* underwent ablaut reduction was not a vowel but a consonant, inherently less sonorous than the resonant *l*, so that the syllable structure was not -*ClX̣C*- but -*CḷXC*-.

1.3. In the following discussion of Greek evidence for laryngeals, I first treat what seem to me the most likely developments of the laryngeals, and then review some other developments which have been suggested but which seem to me either erroneous or too speculative to be included within the corpus of well established phonology. I have not tried to read or remember everything that has been written about laryngeal reflexes in Greek, so that failure to mention a theory does not necessarily mean that I consider it unworthy of even a passing reference, and failure to mention the originator of a theory which I discuss should not be interpreted as intentional distortion of the history of laryngeal theory.

2.0. Much of the positive part of this report should be an attempt to restate what we know about the ablaut of heavy bases, especially disyllabic heavy bases, substituting **e* plus laryngeal for the traditional **ē, ā, ō,* and laryngeal for the traditional **ə.* To do this task properly would require a better knowledge of Greek than I possess and more independent research than I can easily do at the moment. The following treatment relies most heavily on the presentations in Schwyzer's *Griechische Grammatik* 1.359–63 and Kuryłowicz's *L'Apophonie en indo-européen* 166–208.

2.1.1. Regarding the number of laryngeals to be posited, Greek evidence points to three, which I will write *E*, *A*, and *O*, according to their effect on a neighboring **e*. Where the identity of a laryngeal is uncertain or irrelevant I will write *H*. No more than three are indicated by Greek because the only solid evidence I can find within Greek to differentiate laryngeals is their effect on vowel color. It seems unlikely that there were less than three. Ignoring the Hittite evidence (where at least *E*, or one member of the set *E*, if I am actually subsuming several distinct phonemes under one symbol, seems to have different consonantal reflexes from *A* and *O*), we might want to consider vowel color as inherent in the PIE vowels themselves, and use laryngeals only to account for length – so that the paradigmatic trio τίθημι, ἵστᾱμι, δίδωμι would be from **dheH-*, **staH-*, **doH-* rather than **dheE-*, **steA-*, **deO-*.[2] But this solution would leave unexplained the predilection of normal grade *a* and *o* for initial position (type ἄγω, ὄψομαι), which is plausibly accounted for if vowel color is attributed to laryngeals. We would expect no restrictions on occurrence of roots of the type *HeC-*, while the rarity of medial *a* and *o* would reflect the rarity of a root pattern *CHeC-* (regarding which cf. especially Hoenigswald, *Lg*. 28.184). Furthermore, there are a few cases (cf. § 2.5.1) where Greek has an *e* or *o* for which the most likely source is a vocalized laryngeal and where it seems impossible to account for the differing vowel timbres except by assuming a difference in the underlying laryngeals.

2.1.2. The laryngeal *A* changed a neighboring **e* to *a*, and *O* changed a neighboring **e* to *o*. Paradigmatic Greek examples are ἄγει, ἔστᾱ, ὄψεται, ἔδωκε from **Aeǵ-*, **steA-*, **Oek*^{w}-, **deO-*. This development is shared by all the Indo-European languages, including Anatolian.[3]

It seems pretty clear that *A* did not change a neighboring (ablaut) **o* to *a*. It is true that *ā̆*-roots often have *ā̆* in *o*-grade formations, e.g., perf. ἕστᾱκε, λέλᾱθε; but occasionally there are forms with *ō̆*, e.g., βωμός 'stand, altar', φωνή 'sound, voice', to the roots of ἔβᾱ 'went' and φᾱσί 'says'. It is much easier to explain the former type by analogy than the latter. Thus, βωμός is semantically quite free of ἔβᾱ in historical Greek, but forms like ἕστᾰκε and λέλᾱθε are united in a single paradigm with other forms of the Greek roots στᾰ- and λᾱθ-; ἕστᾰκε, formed on the extended root στᾰκ-, has evidently replaced an earlier cognate of Skt. *tastháu* and Lat. *stetī*, which may perfectly well have been *ἕστω.

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[2] The necessity of positing non-apophonic *o* and *ō* in Indo-European has been rightly insisted on by Martinet, *Word* 9.253–4 (= *Économie des changements phonétiques* 212–4). It is past believing that such a frequent and widely attested root as **dō-* should have analogically replaced **ē* or **ā* by *ō* in all normal grade formations. Lat. *dās* is based on *dā*, which in turn is an innovation, as shown by the fossilized *cedo*.

[3] I include Anatolian within Indo-European not because I reject Sturtevant's Indo-Hittite hypothesis, but because I consider it unproved. Although I can see several features not considered by Sturtevant in which the non-Anatolian languages may turn out to have innovated together (cf. note 56 for an example), this is not the place to discuss them.

Furthermore there are a couple of probable cases of *ŏ* in Greek from **oA* or **Ao* where any analogic replacement of **ă* by *ŏ* would have to be very early, before the breakup of the Indo-European dialects. One of these is the 1st singular active thematic ending -ω from *-*o*-*A*. That the laryngeal involved here is *A* is indicated by the 1st singular perfect ending -α from *-*A*-*e* (cf. Faliscan *pepara*[ ) and the middle ending -μαι, which appears to reflect an old athematic *-*A*-*e*-*y* (thematic *-*o*-*A*-*e*/*o*-*r* in Lat. *sequor*) contaminated with the *m* of athematic active presents and aorists. It seems unlikely that the unanimous -*ō* of Greek, Latin, Celtic, and Baltic should be analogic for *-*ā*. The second example is the negative οὐ, which in *Lg*. 36.347–50 I have derived from **Aóyu* 'life(-time)', whose Sanskrit reflex *ā́yu*- shows the Brugmann's Law lengthening characteristic of an ablaut **o*.

Also, if *A* was a velar spirant, [x] or [γ], it is easy to see how it could have retracted an *e* to *a*, but hard to see how it could lower and unround an *o* to *a*. I have the impression that the virtual restriction of qualitative ablaut in Greek to *e* and *ē* bases is an innovation; the most fully developed ablaut scheme is shown by the most frequent series, and the other, subsidiary series tend to be restricted to alternation of quantity alone.[4]

2.2. Before syllabics, laryngeals disappeared in Greek, leaving traces in the coloring of adjacent vowels and in the syllabic (rather than non-syllabic) character of preceding resonants.

2.2.1. Fairly certain examples of this development initially before vowels are ἀντί 'opposite, instead of', ὄρνις 'bird', with *A* and *O* respectively; cf. Hitt. *hant*- 'front' and *haraš* 'eagle'.[5] Initial examples before syllabic resonants are fewer and less certain. However ἰθαρός 'cheerful, pure' probably belongs with αἴθω 'kindle', and leads to reconstruction as **Aidh*- beside **Aeydh*-. Similarly αὐδή 'voice' and ὑδέω 'call, name' can be combined as **Aewd*-, **Aud*-. For ὄλλυμι 'slay' the equation (probable) with Hitt. *hullai* 'smites' suggests an analysis **Ol̥-ne-O-mi* (for the development of the suffix cf. § 2.5.2), where Gk. ὀλ- is analogic for *ἀλ- in the same way that θόρνυμαι (Herodotus) is analogic for θάρνυμαι (Hesychius).

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[4] Hence also the probable widespread replacement of *η : α and *ω : α by η : ε and ω : ο discussed in § 2.5.1.

[5] Of the forms of this word listed by Pokorny, *IEW* 326, that point to an initial **e*-, Lith. *erẽlis* (with its shorter form *ẽras*) is evidently assimilated from the dialectal *arẽlis*, whose relative antiquity is confirmed by Pruss. *arelie*. Latv. *èrglis* has undergone even more remodeling. The **eruros* which is needed to explain OIr. *irar* is unparalleled outside Celtic, and will account for Welsh *eryr*, Bret. *erer* only if we assume a -*yo*- or -*ī*-final in British. Rather, I think the basis of the Celtic forms is **oriros* (cf. Slavic **orilos*). This will lead to the British forms with no difficulty. In Irish there was a metathesis. If medial **o* did not lower a preceding *i* to *e* (I know of no decisive examples), **oriros* may have become **iroros* at any time. If medial **o* did lower a preceding *i*, the metathesis has to be fixed between the raising of vowels in initial syllables and the lowering of medial vowels: **urirah* became **irurah*, which then developed regularly through **irorah* to *irar*.

2.2.2. Medially after nonsyllabics, loss of laryngeals before syllabics is easily observed in derivatives of disyllabic roots formed with vowel-initial suffixes. Thus the type of βέλος 'missile' (*_g_^{w}_elE-os_), βόλος 'a throwing' (*_g_^{w}_olE-o-_), beside βέλεμνον 'missile', with the laryngeal vocalized as ε before a consonantal suffix. Βέομαι 'I shall live', an old subjunctive, can be reconstructed as *_g_^{w}_eyO-o-_ to the root that appears in βίοτος 'life', ζώω 'I live', etc.[6]

2.2.3. After vowels, the loss of presyllabic laryngeals must have resulted at first in a hiatus, which was removed by contraction (probably long before the loss of intervocalic *_y_ and *_s_ led to the familiar hiatuses of historical Greek). A familiar example here is πλεῖστος 'most', cognate with Av. _fraēšta_ (cf. OLat. _plīsima_), from *_pleE-isto-_; the result is the same as from an original diphthong *_ey_. Possibly *_O_ rather than disappearing here became _w_, although the arguments I have so far seen in favor of this view are not very satisfying (cf. § 4.4.3).

Development of postvocalic _A_ is probably to be seen in adjectives of the type δίκαιος, where -αιος evidently represents *_-eA-iyo-s_, becoming first *_-aïyos_ and then *_-ayyos_; the Sanskrit type _-eya-_ (cf. Wackernagel-Debrunner, _Ai. Gr._ 2.2.510) has the same basis. The actual suffix here may well be *_-iH-o-_, thematicized from the *_-iH_ that appears undeclined in the Italo-Celtic _o_-stem genitive singular (cf. Schwyzer 1.465-6). However, it does not seem quite safe to assume that every prevocalic ι and υ in Greek that cannot be accounted for by Sievers' Law represents a sequence of *_i_ or *_u_ plus laryngeal, even when there is alternation with preconsonantal ῑ and ῡ. Thus, a word like ὗς, gen. ὑός, lacks cognates that would definitely indicate a laryngeal, and for words like ἔπιον, πῖθι the evidence is rather that the laryngeal preceded the *_i_, *_peOi-_ or the like; how a zero grade _pī-C_, _piy-V_ could develop from such a sequence remains unclear to me (although the suggestion of Kuryłowicz, _Apophonie_ 170, that the ablaut _CeHi_ : _CHī_ is paralleled by a type _CeRi_ : _CRī_ seems worth considering).

2.2.4. When the laryngeal followed *_ṛ_, _ḷ_, _ṃ_, or _ṇ_, we expect the resonants to become αρ, αλ, αμ, αν, with the same α that appears outside laryngeal environments, and this is what we often get, e.g. ἔβαλον 'they threw' < *_eg_^{w}_ḷE-_, ἔκαμον 'they toiled' < *_eḱṃA-_. But where the following laryngeal was _O_, we generally get ορ, ολ : ἔμολον 'they went', ἔθορον 'they leapt', ἔτορε 'pierced', ἔπορον 'they granted' to the presents βλώσκω, θρώ(ι)σκω, τιτρώσκω and the perfect πέπρωται. An ablaut ρω : αρ or λω : αλ seems not to occur in Greek. F. B. J. Kuiper has suggested, _India Antiqua_ 199, that the development to ορ and ολ here was phonetically regular, the laryngeal influencing the vocalization of the resonant. I doubt that this is correct, because I believe that Dor. πρᾶτος represents a direct outcome of *_pṛO-tos_ (cf. § 2.3.2). If preconsonantal _O_ failed to color the *_ṛ_ in this word, I doubt that it would have colored preceding resonants when prevocalic. Hence an explanation along the lines suggested by Kuryłowicz, *Apophonie* 207–8, seems preferable. Given the alternation *TRō-C* (representing both the old State II full grade *TReO-* and [analogically for *TRā*] the zero grade *TṚO-*) : *TaR-V*, the pattern *TRā-C* : *TaR-V* of roots like κμᾱτός: ἔκαμον could lead to replacement of *TRō-C* : *TaR-V* by *TRō-C* : *ToR-V*. This is essentially another example of the impoverishment of subsidiary ablaut patterns that I mentioned above (§ 2.1.2) in connection with the disappearance of an *o*-grade in *a*-roots. Here, in the *TeRO*-roots, the *o* vocalism has tended to become universal.

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[6] Attic ζῆν and Cretan βίετος do not require a root with *_E_ instead of *_O_; cf. Thurneysen, _IF_ 38.147.

Examples where the resonant has developed into a simple consonant, just as if there were no following laryngeal, are rare and dubious. Kuryłowicz, *Apophonie* 172, mentions γίγνομαι, νεογνός, and ἴγκρος 'brain'. But the first two of these possibly come from an aniṭ root **ǵen-*, without laryngeal, hardly attested outside of Greek, to be sure,[7] but fairly clear in the Greek perfect ἐκγεγάτην, γεγαώς.[8] A form of the word for 'head' without laryngeal suffix seems adequately guaranteed by Hom. ἐπὶ κάρ (π 392), and the alternation between κόρυ-θ-'helmet', κορυ-φή 'summit' and ἀντι-κρύ 'opposite, straight ahead' suggests an old neuter **ḱóru, ḱru-* parallel to **ǵonu, ǵnu-* 'knee', **sonu, snu-* 'back', **doru, dru-* 'wood', in which there would be little likelihood of a laryngeal.

2.3.1. Laryngeals followed by word final or nonsyllabic and preceded by vowel (*a*, *e*, *o*) regularly disappeared in Greek, and the preceding vowel was lengthened (i.e., laryngeals were assimilated to preceding tauto-syllabic vowels), as illustrated medially by the traditional τίθημι, ἵστᾱμι, δίδωμι, and finally by such forms as nsf. νέα < **néweA*, nadm. νέω < **néwoH*.[9] In a few cases the expected final lengthening is lacking, e.g., πρό, where a final laryngeal is suggested by such related words as πάρος, πρῶτος and Skt. *purás* 'before', *pū́rva-* 'first'. Kuiper has suggested (e.g., *India Antiqua* 210 with n. 53, *Die Sprache* 7.18) that such short forms originated in pause, where the laryngeal was lost without affecting vowel length. This view seems to provide the best explanation for vocatives like Skt. *devi, lakṣmi, vadhu,* Gk. νύμφα, OCS *ženo*. If Proto-Indo-European had words with initial vowels or syllabic resonants, or non-syllabic initial laryngeals were lost before final laryngeals were, it might be possible to add here the position before initial syllabic. The development would be like that of **pleE-isto-* (§ 2.2.3), except that morphologic word boundary would keep the hiatus uncontracted.

2.3.2. The development of resonant plus laryngeal before word final or nonsyllabic is less clear, and all I will do here is sketch briefly what at present seems to me most likely. In Proto-Indo-European it appears that the resonant was regularly syllabic and the inherently less sonorous laryngeal nonsyllabic (*TṚHT*, not **TRḤT*), unless morphologic considerations intervened (as probably in the nasal presents) or a second preceding resonant or vowel led to the syllabification *TṆRḤT*, *TeRḤT*. I follow Kuryłowicz, *Apophonie* 195–208, in thinking that the straightforward developments of *ṚH* are ῑ, ῡ, ρᾱ, λᾱ, μᾱ, νᾱ,[10] regardless of the laryngeal involved; other apparent developments I think are the result of morphologic innovation or of misassignment by modern scholars.

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[7] Most notably in Latin *gens*.

[8] Cf. Cardona, *Lg*. 37.422, for another possibility about γίγνομαι. It is thinkable, of course, that γέγονα : γεγα- (**ǵeǵṇ-*) has been reshaped from γέγονα (< **ǵeǵonE-Ae*) : *γεγνᾱ- (< **ǵeǵṇE-*). The contrast with βέβληκα, ἵληκα*, τέτληκα, κέκμηκα, τέθνηκα, μέμβλωκα, βέβρωκα would then have to reflect a chronological difference: γέγονα was inherited from a time when Proto-Indo-European rules of ablaut and stem formation were still in effect (it has a Sanskrit cognate), but the other Homeric active perfects to *CeRH*-roots are later creations, using an already existing *CRV̄*-grade, to which was later formed a new zero grade *CRV̆*-. (The puzzling μέμηλε is perhaps metathesized from *μέ-μλη-ε, before development of *-μλ- to -μβλ- and before spread of the κ-formant.)

[9] Cf. F. B. J. Kuiper, *Die Sprache* 7.19–20 (1961), for evidence that this dual ending contained a laryngeal.

Examples of the regular development would be ὀπῑπεύω 'spy', apparently from **Ok*^{w}*i-Ok*^{w}*-*; optative εἶμεν from **esiEme-* or **EsiEme-*; -δμᾱτος 'built', from **dm̥Ato-*; Doric πρᾶτος 'first', from **pr̥O-to-* (compare Skt. *pūrva*, OCS *prъvъ* from **pr̥O-wo-*, Lith. *pìrmas*, OE *forma* from **pr̥O-mo-*, and cf. Schwyzer 1.595, and Buck, *The Greek Dialects* (1955) §114a). As in the case of πρό, a resonant apparently can fail to lengthen before a final laryngeal; a fairly plausible example is εἴκοσι (if this really has a dual ending and if the neuter dual ending really was **-iH*).[11]

But words showing these 'regular' developments are not very numerous. Thus πρᾶτος and the Hesychian τεθρᾶσθαι·ὠχεῦσθαι cited by Specht, *KZ* 59.113, are my only pieces of evidence that the regular development of **r̥H* is ρᾱ and not ρω, even when the laryngeal was *O* (Attic πρῶτος and θρώσκω can have been adapted to forms with -ρω - or -ρο (viz. πρό) from **reO*, but πρᾶτος and τεθρᾶσθαι have no analogic model). Cf. also Szemerényi, *Studies in the Indo-European System of Numerals* 17 (1960), where it is convincingly argued that the original Greek form of '40' was **k*^{w}*etwrākonta*, with *rā* from an *r̥̄* arising by loss of a non-laryngeal consonant (*ibid.*, 136).

When I wrote the previous version of this report, I was troubled by the pair βλωθρός 'lofty', μέλαθρον 'roof', since the latter suggests a base **melAdh-* (cf. § 2.5.1), so that βλωθρός could hardly be explained as analogic to a state II full grade **mleOdh-*. But I see now that pairs like σφεδανός : σφοδρός make a reconstruction **mloAdh-ró-* possible; βλωθρός could then be added to the words mentioned in § 2.1.2 as indicating that *A* did not affect the timbre of a neighboring *o*.

A more common development is for bases subject to ablaut to remodel their preconsonantal zero grade after state II (*-ReH-*) of the full grade. In morphemes containing **rA*, **lA*, **mA*, or **nA*, zero grade and state II would fall together regularly, and this probably provided the model for syncretism of the two grades in morphemes with other laryngeals and other resonants, resulting in forms like τρητός, βέβληται, στρωτός, πέπρωται, where morphologic patterning leads us to expect a zero grade. That such remodeling was not limited to bases containing *rlmn* is shown by ζώω

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[10] I have nothing to say here about how *r̥H*, *l̥H*, *n̥H*, and *m̥H* came to be pronounced ρᾱ, λᾱ, νᾱ, μᾱ.

[11] Hesychius' νεώβορτον 'newly eaten', with apparently unlengthened medial (Schwyzer 1.360, 363), may be a corruption of νεώβορον. M. Schmidt emended to νεοβόρον, Liddell-Scott-Jones enter the word as νεόβορος. It hardly seems necessary to say that words like φύσις beside ἔφῡ are analogic to models like βάσις beside ἔβᾱ (cf. Kuryłowicz, *Apophonie* 205).

'I live', ζωός 'alive'. It is extremely unlikely that these should continue a *g^{w}_yeOwo-_ with an ablaut grade different from the *g^{w}_iOwo-_ of Lat. _uīuō_, _uīuus_, Gmc. *_kwikwaz_, Lith. _gývas_, OCS _živǫ_, _živъ_, Skt. _jī́vāmi_, _jīvá_. It seems more likely that pre-Greek *g^{w}_īwō_, *g^{w}_īwós_ were replaced by *g^{w}_yōwō_, *g^{w}_yōwós_, with a g^{w}_yō-_ either taken from some form that had full grade II (perhaps the ancestor of ἐβίων, if that can be explained as a Sievers' Law alternant) or formed to full grade I *g^{w}_eyo-_ on the analogy of the type _tema-_ : _tmā-_.

Another frequent development was the creation of a new super-zero grade $R\breve{\bar{V}}$ to $R\bar{V}$ on the pattern of $T\breve{\bar{V}}$: $T\bar{V}$ from *_TH_ : _TeH_ (cf. Kuryłowicz, _Apophonie_ 197); hence e.g. τέθναμεν beside τέθνᾱκα, *φέροντι̯α (replacing *φεροντῐ̄) beside *φερόντι̯ᾱς, μέμβλεται beside *μέμλης (on which see ftn. 8). An apparently early group of these has α as short vowel even when the long vowel is η or ω, e.g., ἐρράγη : ἔρρηξε, πίμπλαμεν : πίμπλημι, γλάσσα : γλῶσσα (cf. § 2.5.1).[12]

In a third group of forms, exemplified by ἐπρίατο 'bought', βίοτος 'life', θάνατος 'death', ταλασίφρων 'of patient heart', the combination of resonant and laryngeal seems to have a disyllabic reflex. But scholars seem to have included in this class many words that historically belong to the first state of the full grade – cf. the important statement of van Wijk, _IF_ 20.342–4, and especially Specht, _KZ_ 59.55–6, 105, 115–7.

Thus, I see no reason whatever a priori to assume that θάνατος continues the same ablaut grade as θνᾱτός. If we admit that *_temA-_ 'cut' can appear not only as τέμα-(χος), but also as τέμε-(νος) (assimilation), and ταμε-(σί-χρως) (complex remodeling, conditioned partly by the existence of a prevocalic ταμ- from *_tm̥A-_ in the aorist), it does not seem impossible that a *θένατος (or *θόνατος) could have become θάνατος by assimilation, partly under the influence of the aorist ἀπέθανον. Similarly the antonym βίοτος has probably replaced *βέοτος from *g^{w}_eyO-t_ . . . (cf. Hom. βέομαι), apparently under the influence of ἐβίων.[13] More examples and reference to other viewpoints can be found in Schwyzer 1.362 and Kuryłowicz 199–201.[14]

Even where the disyllabic reflex does seem to continue a genuine zero grade, I strongly suspect that it is the result of a series of morphologic innovations. Thus ἐπρίατο for *ἔπρῑτο does not seem basically different from ἐγένετο for *ἔγνᾱτο. But I cannot now make out much of the prehistory of these and similar forms.

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[12] Note that ὄσσε '(two) eyes' cannot be explained this way, since we have no evidence for full grades *_-eyH_ or *_-yeH_ of the dual ending _-ī̆_. Rather, as traditionally stated (e.g., Schwyzer 1.565), ὄσσε has been formed by adding a dual ending *_-e_ (which seems to be found also in Lithuanian, Indic, and Irish) to the already complete word *_o_k^{w}_ī̆_. Judging by the development to *_o_k^{w}_ye_ rather than *_o_k^{w}_iye_, Gk. *ὄτιε, the unextended form was probably *_o_k^{w}_i_, like εἴκοσι with a short final vowel.

[13] In many dialects, of course, εο became ιο regularly. Βίος does not occur in the Iliad (except perhaps in the name Ὀρέσβιον E 707), and only three times in the Odyssey (plus the derived verb ἐβιώσαο θ 468), and so is probably a truncation of βίοτος, not an archaic root noun preserved only in Greek. The clearest outside parallel to *g^{w}_eyO-to-_ is OIr. _bethu_, which cannot very well come from *g^{w}_iwo-tūt-_ (the source of Welsh _bywyd_ and OIr. _bēothu_, Wb 3c2; on the phonology cf. Hamp, _Études celtiques_ 6.283), but can come from Celtic *_beyatūt-_, with the root form *g^{w}_eyO-_.

[14] Irish _tarathar_ and _talam_ beside Gk. τέρετρον, τελαμών are probably also assimilated full-grade forms. The same may be true even of Welsh _adar_ (< *_petHro-_?).

2.4.0. The only development for laryngeals not adjacent to syllabics for which I see clear evidence in Greek is vocalization, generally to α, but probably also to ε and ο in some circumstances. This feature of maximal vocalization seems to be shared by Armenian, and strongly suggests that the dialects ancestral to Greek and Armenian were in contact at the time when laryngeals began to develop differently in different parts of the Indo-European speaking territory.

2.4.1. In word initial, it appears that certain cases of 'prothetic vowel' are actually vocalized laryngeals.[15] About as sure an example as we could hope for is ἄησι 'blows', cognate with Skt. _vā́ti_, OCS _vějati_, Goth. _waian_, Lat. _uentus_, Toch. A _want_, etc. First rate evidence for a laryngeal is provided by Hitt. _hu-u-wa-an-te-eš_ 'winds'.[16] The failure of Vedic to lengthen final vowels before the root _vā_ is hardly significant in view of the small amount of material (_Indra-vāyū́_ 'Indra and Vayu', where the short _a_ seems to represent an analogic shortening of the expected dual _Indrā-_; and two cases of _avātá-_ 'windless'), and the generally uncertain value for laryngeal theory of Vedic lengthening before 'initial' resonants.

Another good case of prothetic vowel from laryngeal occurs in ἐνεγκεῖν 'to bring', ποδ-ηνεκής 'reaching to the feet', etc. Here the cognate perfects Skt. _ānáṃśa_ and OIr. _-ánaic_ seem comprehensible only as PIE *_He-Hnonḱe_, in which the root initial combination of laryngeal plus resonant has been reduplicated in the same fashion as a combination of stop or _s_ plus resonant (type Skt. _papráu_, Gk. κέκλυθι, εἵμαρται, Goth. _faifrais_, Welsh _cigleu_). The root of these perfects, *_Hnenḱ-_, has an anomalous shape, and is probably a secondary modification of the *_Hneḱ-_ of Gk. ποδηνεκής (η due to morphologic lengthening in compounds), OCS _nesti_, Lith. _nèšti_ 'carry', Skt. perf. _ānāśa_, _āśur_ (*_He-Hn̥ḱ-?_), aor. _naṭ_, _ānaṭ_ (where the consistent long augment is again evidence for a laryngeal; *_e-Hneḱt_).[17] As for the morphological analysis of the Greek aorist ἐνεγκ-, development from a reduplicated *_Hne-Hn̥ḱ-_ would be phonologically acceptable (intersyllabic _H_ was probably lost before *_n̥_ became α), but a reduplication consisting of consonant plus resonant is anomalous (cf. what has just been said about the shape of the perfect), and reduplicated aorists were not very common in PIE. Hence I prefer to reconstruct *_Hnenḱ-_, a root aorist[18] to the root variant with double nasal; cf. Skt. 1st sg. mid. aor. _náṃśi_, RV 6.51.12. Within Greek, of course, ἐνεγκ- could be reanalyzed as being reduplicated, ἐν-εγκ-.

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[15] But a Greek prothetic vowel is not by itself evidence for a laryngeal. As Winter has said, _Studien zum 'prothetischen Vokal' im Griechischen_ 5, "Ein Laryngal darf erst dann als bewiesen angesehen werden, wenn von ihm mehr Spuren nachgewiesen werden als lediglich ein gr[iechischer] P[rothetischer] V[okal]."

[16] Welsh _awel_ 'wind', OIr. _oal_, gen. _oíle_ 'bucca' is less certain evidence, because the vocalism of the second syllable is not clear. Gk. ἄελλα could be from *_AewE-liA_ (remodeled after cases with *_AewE-lyeA-_), but *_AewEl-_ ought to give W *_awal_, OIr. gen. *_ólae_, and *_AweEl-_ should give W *_gwil_, Ir. *_fíl_ (or, if we admit prothetic vowels from laryngeals for Celtic, W *_ewil_, Ir. *_ual_).

[17] The sort of echo nasal in *_Hnenḱ-_ beside *_Hneḱ-_ is reminiscent of the Hittite verbs with infixed _nin_ before _k_, of the type _har-ni-in-kir_ 'perdiderunt' beside _har-ki-e-ir_ 'perierunt', which evidently represent a secondary development from the Proto-Indo-European infix *_-né-/-n-_.

[18] Athematic inflection, ἤνεγκα etc., is well attested in Attic authors.

A third well established example is ἀέξω, where the vocalism of the related αὐξάνω, Lat. *augēre*, Goth. *aukan* seems prima facie evidence for an initial **A*.

2.4.2. Other cases are not quite so good. So for ἀνήρ, Arm. *ayr*, the only evidence that the initial vowel comes from a laryngeal is the fairly consistent lengthening of vowels before Indo-Iranian *nṛ* in compounds, e.g., Vedic *viśvā́nara-*, *sūnára-*.

For ὀδούς (Aeol. ἔδοντες) Arm. *atamn* 'tooth', the vocalism of Balto-Slavic *ēd-* 'eat' and Arm. *utem* 'id.' and the somewhat insecurely guaranteed *ē* of Lat. *ēs*, *ēst*, *ēstis* are not very good evidence for an initial laryngeal.[19] Provided these are not all of secondary origin,[20] their relationship to the *ed-* of Sanskrit, Greek, Germanic, Celtic (OIr. subj. *estir*), and Lat. *edō* might be accounted for by assuming a Schwebeablaut **Eed-* : **eEd-* (cf. Hans Hendriksen, *Untersuchungen über die Bedeutung des Hethitischen für die Laryngaltheorie* 61, where the idea is mentioned and rejected). However at best this would be a rather unsatisfactory artifice, leaving still unexplained why some languages had generalized one full grade and other languages generalized the other.

But now that I have given up my view that Greek provides positive evidence for Proto-Indo-European roots with initial vowel not preceded by laryngeal (cf. § 3.3 below), the economy of not having to posit a root type **eC* in addition to **CeC* is some faint argument in favor of a root **Eed-* 'eat', with participle **Edónt-* 'tooth'.[21]

It is at least possible that Gk. ἀγοστός 'hand' is from **Hǵosto-*, and is related to Skt. *hásta*, Av. *zasta* 'id.'. But this etymology would require us either to assume a metathesis (in which language?) of **H* and **ǵ*, or else to posit a development of **Hǵ-* to **ǵh-* in Indo-Iranian, for which I know of no other evidence.

2.4.3. An example of a prothetic vowel for which there is no evidence for laryngeal origin is ὄνομα (Lac. Ἐνυμακρατίδας), Arm. *anun* 'name'. The Hittite cognate, *la-a-ma-an*, is in fact rather negative; one would have expected an initial laryngeal to appear as *h-* or *a-* in Hittite. The Rig-Veda has *saptá-*, *sá-*, *áhi-*, *sumántu-*, *suhávītu-nāman*; all without lengthening of the first element. The Greek negative νώνυμ(ν)ος, although certainly representing a pattern that began in roots with initial laryngeal, where **n̥-HC-* became **n̥̄C-* (Puhvel, *Lg.* 29.24–5), does not show that ὄνομα itself began with a laryngeal, since the pattern it represents has clearly spread in Greek.

Another example of the same sort is ἀμέλγω 'milk'. The only evidence for a laryngeal here is the long reduplication of Skt. *māmṛje* 'wiped', which more probably goes with Gk. ὀμόργνυμι 'wipe', and in any case may have an intensive reduplication (Winter, *Proth. Vok.* 42); against it is Szemerényi's attractive derivation of Gk. γάλα

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[19] As Winter has shown, *KZ* 72.167, an etymological connection between *tooth* and *eat* is not semantically implausible.

[20] In the case of Balto-Slavic at least, the suspicion of secondary origin is very strong; cf. BS *sēd-* 'sit' and *bēg-* 'run', whose long vowels cannot be accounted for by juggling laryngeals from one position to another.

[21] Of the objections which I expressed, *Lg.* 36.491 n. 22 (1960), to Benveniste's derivation of Lat. *ēdī* from **Ee-Ed-*, only the chronological one remains. I see now that Lat. *apiō* can have been formed on the model of *faciō*.

'milk' from a PIE root noun **melǵ-* (*mēlǵ-*), *mḷǵ-* (*KZ* 75.170–84; cf. esp. 175, ftn. 3).

2.4.4. Since I believe that initial laryngeals before nonsyllabics were always vocalized in Greek (for a critique of other suggested developments, cf. § 3.1–3), it follows that wherever Greek shows apparently cognate forms both with and without prothetic vowel, either the forms are not genuinely cognate or the prothetic vowel does not owe its existence to a root-initial laryngeal. Here I would mention especially the types ϝίκατι, εἴκοσι '20' and ἕρση, ἐέρση 'dew', in which otherwise identical words appear (often in different dialects) sometimes with a prothetic vowel, sometimes without it but with an initial digamma or rough breathing, and cognates in other languages have an initial **w* (e.g., Skt. *viṃśatí*, *varṣá*). A PIE ablaut difference is out of the question here, and I see no basis for assuming that the Greek alternations reflect a dialectal difference in the outcome of **Hw-* or different generalizations of sandhi variants dating from the time when laryngeals were still distinct phonemes.

2.4.5. It seems also that the Attic reduplication in Greek perfects must have started from roots which had a prothetic vowel of nonlaryngeal origin. As Kuryłowicz himself points out, *Apophonie* 270, there is no basis for positing **Hle-Hl(o)udh-* and the like to explain Gk. ἐλήλυθα and similar forms. Kuryłowicz's present view, that the long second syllables in these perfects are due to the analogy of compound-initial lengthening (ἐλ-ήλυθα like ἔπ-ηλυς) seems better than Schwyzer's suggestion (1.766, ftn. 8) that the lengthening spread from perfects with long, 'intensive' reduplication; Greek has very few intensive-type perfects.

Similarly, the present ὀνίνημι 'profit', with short ι, is incomprehensible if we start from a root **HneA-*, but easily derived from **ni-neA-*, with later accretion of prothetic vowel. Since ὀνινᾱ- could not be analyzed into reduplication ὀν - plus root -ινᾱ-, it escaped the analogic lengthening of the perfects.

2.5.1. The development of internal and final schwas not adjacent to syllabics has been the subject of extensive discussion before the advent of laryngeal theory, and I do not see that substituting **H* for **ə* contributes anything new to the problems involved.

The essential question here is whether all laryngeals became phonetically α, and apparent examples of ε and ο from *E* and *O* are analogic, or whether *E* and *O* actually became ε and *o* in some cases by regular phonetic development.

Of the forms cited in favor of a single outcome, α, for all laryngeals, those where the laryngeal follows a resonant (type ῥαγῆναι beside ῥήγνυμι, γλάσσα beside γλῶσσα) are not likely to be old: it seems unlikely that PIE would have had sequences of the shape *CRḤC* beside the usual *CṚHC*. However they strongly suggest that *ē* : *a* and *ō* : *a* ablaut was once more widespread in Greek than the handful of examples actually attested in obstruent environment (mainly χατίζω 'lack' beside χῆρος 'bereft'); models like τρέπω : ἔτραπον (PIE **re* : *ṛ*) can hardly by themselves account for the *Rē* : *Ra* and *Rō* : *Ra* alternations. Hence it seems we have to admit development of *E* and *O* to Gk. α in some environments.

But there are also a few cases of Greek ε and ο which seem to reflect PIE laryngeals and which cannot be explained as assimilated from *α (as τέμενος and μέγεθος are certainly assimilated from *τέμα-νος and μέγαθος, δοχμός may well be for *δαχμός, and ἐνεγκεῖν could be for *ἀνεγκ-[22]) and for which no possible analogic source is attested in Greek; such are ἄνεμος 'wind' and ἄροτρον 'plow' (assimilated in Cret. ἄρατρον). As far as I see, all such cases are in resonant environment; this suggests a rule that *E* and *O* vocalized to ε and ο next to resonants, to α elsewhere. But I am unable to think of any plausible prehistoric phonetic sequence of events to justify such a rule, and the material is too limited to justify setting up any serious hypothesis.

2.5.2. In one interesting set of words, **O* appears in Greek as υ. These are the nasal presents to roots ending in **O*: στόρνυμι 'spread, lay low' (cf. ἐστόρεσα,[23] στρωτός, Skt. *stṛṇā́ti*, *stīrṇá*); θόρνυμαι, θάρνυμαι 'copulate' (cf. θρώσκω, ἔθορον 'leap'); ὄμνυμι 'swear' (cf. ὤμοσα); ὄλλυμι 'slay' (cf. ὤλεσα, ὄλεθρος). A fifth example, *κόρνυμι 'sate', possibly underlies the late κορέννυμι (cf. ἐκόρεσα and Schwyzer 1.697; but Frisk *GEW* 1.919 is probably right in thinking this root had no old present in Greek).

The essential nature of at least one of these presents was seen already by Wackernagel, *Sprachliche Untersuchungen zu Homer* 206: ὄμνυμι " . . . muss an Stelle eines wegen ὀμο- zu fordernden *ὄμνωμι getreten sein." More recently Jaan Puhvel has developed the idea of a class of Indo-European *-neO*-presents beside the familiar *-neA*-formation, first in *Studies . . . Whatmough* 234 (1957), and then in his monograph, *Laryngeals and the Indo-European Verb* 34–9 (1960). Although Puhvel is certainly right to distinguish such a class, not everything he says about it convinces me; in particular, I do not find cogent his arguments for a development of **O* to *u* or *w* already in Proto-Indo-European.[24] I hope to discuss Puhvel's ideas more fully elsewhere;[24a] in this context it seems enough to show how νυ can have developed from *νω/νο within Greek, after first eliminating from the class a verb that does not belong to it and discussing the prime Sanskrit example for an early change of **O* to *w*.

Greek ὄρνυμι 'set in motion' is considered to belong to the *-neO*-class by Puhvel, *Studies . . . Whatmough* 234, *LIEV* 38. But it is rather a *new*-present to an aniṭ root, as shown by other Greek forms (aorist ὦρσε, ὦρτο; there is no *ὤρεσα, and ὤρετο can be thematicized[25]) and by cognates in other languages: Lat. *oritur* (**ṛ-ye-*) *ortus*, not **rātur* (**ṛH-ye-*) **rātus*; Hitt. *er-teni* 'you arrive', *ar-tari* 'stands', *ar-nuzzi* 'brings, removes'; Skt. *ṛccháti*, *íyarti*, *ṛṇóti*, aor. *ārta*, ppp. *ṛtá*. Of the Indo-Iranian forms which Puhvel cites as evidence for a seṭ root, *ī́rte* is the middle of *íyarti* and *īrṇá* results from reinterpreting *ī́rte* as a 1st class present (possibilities admitted by Puhvel, *LIEV* 38 and 75). The *ṛṇāti* of the Dhātupāṭha is probably an example of the general Middle Indic replacement of *no-* by *nā*-presents. Avestan *paiti.ərənō*, *Yt.* 14.15, does not seem to imply a verb stem *ərənā-*, and *arənaṯ.caēšəm*, *Yt.* 10.35 (cited *LIEV* 18), is left untranslated by Bartholomae, *Air. Wb.* 195, and rendered by others as 'Schuldrächer' (Lommel, *Die Yašt's*), 'who avenges [unpaid] debts' (Thieme, *Mitra and Aryaman* 53), 'punisher of wrong' (Gershevitch, *The Avestan Hymn to Mithra* 91, 186), i.e., a compound of **ərəna-* 'guilt' (or 'debt') and a form of the root *kay-* 'exact vengeance', with, as often in Avestan, a *ṯ* written before *c* at the seam of a compound.[26]

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[22] Especially since OIr. *-ánaic*, not **-ínaic*, suggests that the laryngeal here was not **E*.

[23] For conjectures about the difficult vocalism *oRe* in place of **eRo*, see § 2.5.3.

[24] Cf. Cardona, *Lg.* 37.418–20 (1961).

[24a] Cf. now *Lg.* 39.248–70 (1963).

[25] Schwyzer 1.740.

Sanskrit *stṛṇóti* beside *stṛṇā́ti*, mentioned already by Martinet, *Word* 9.260, 12.4, as probably showing an analogic extension of a *w* reflex of **O*, seems to me rather to reflect an unenlarged root **ster-* beside the more widely attested **sterO-*.[27]

Vedic Sanskrit, as noted already for the presents by Böhtlingk-Roth, s.v. *star*, and by Delbrück, *Altindische Syntax* 277, distinguishes pretty consistently between an aniṭ root *stṛ* meaning 'lay low, strike down (enemies)' and a seṭ root *stṝ* meaning 'strew, spread out' (referring in the Vedas mainly to strewing the barhis at the sacrifice). From *stṛ* 'lay low' come pres. *stṛṇóti* (RV *stṛṇóṣi* 1.129.4), aor. *ástar*, *star* (along with the formally ambiguous subjunctive *stárate*, *starāmahe*), and pp. *ástṛta*, *ániṣṭṛta* (which seems, therefore, not to be an example for loss of laryngeal in compounds). From *stṝ* 'spread out' come pres. *stṛṇā́ti* (17× in RV),[28] perf. *tistiré*, *tistirāṇá*, aor. *astarīs* (2d sg., AV 12.3.38), pp. *stīrṇá*, and the nominal derivatives *stárīman* and *upastír* (*saṃstír* and *viṣṭír* seem hard to unite semantically with either *stṛ* or *stṝ*). In the Rigveda only the passive aorist *ástāri* 'has been strewn', 6.63.3, with aniṭ *ā* instead of seṭ *a*, clearly deviates from the rule; according to Kuiper, *India Antiqua* 200 n. 11, it is "an incidental formation parallel to *ákāri*" in the preceding verse.

To judge by the material in Bartholomae's *Air. Wb.* 1595, Avestan bears out the Vedic distinction between **ster-* 'lay low' and **sterH-* 'strew, spread out', in that forms with the meaning 'lay low' seem to be only aniṭ and the majority of forms meaning 'strew' are seṭ. So, with the former meaning, occur *stərətō*, *V.* 19.2, *Yt.* 19.34, *stryeite V.* 9.13, *-stryata Yt.* 1.29; seṭ forms with the meaning 'strew' include pp. *starəta-*, pres. *stərənāiti*, *stərənte*; aniṭ forms are *frastərənuyå Yt.* 12.3, *frastərətanąm V.* 18.72.[29]

I return to the development of the *neO*-presents in Greek. The paradigm of Proto-Indo-European nasal presents to roots ending in *O* can be reconstructed as sg. **stṛ-né-O-mi* etc., 1st pl. **stṛ-n-O-mé*, 3d pl. **stṛ-n-O-énti*, and so on. These would have appeared in Greek as *στάρνωμι (cf. Wackernagel's *ὄμνωμι), *στάρνομεν, *στάρνοντι (Attic *στάρνουσι; if we suppose the strict phonetic development of syllabic *O* was everywhere α, the 1st pl. etc. would be analogic for *στάρναμεν etc.).

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[26] The etymology of Hittite *aruna* 'sea' remains obscure to me.

[27] **Ster-* probable also in Gk. στρατός 'army'. Presumably the enlarged and unenlarged roots were not at first completely synonymous, but the old **ster-* tended to be pushed off into figurative and specialized uses by the new **sterO-*. Later each language moved toward either reuniting the two in a single paradigm, or else eliminating the *ster*-forms.

[28] RV 8.41.8 *ástṛṇāt* is mentioned by Kuiper, *Die Sprache* 7.24, and Cardona, *Lg.* 37.419, as meaning 'zerstreute' (so translated by Lüders, *Varuṇa* 74) but K. Strunk, *MSS* 17.94-95 (1964), argues plausibly that here too *astṛṇāt* means 'spread out'.

[29] Although Calvert Watkins, *Ériu* 18.99 (1958), considers the Irish preterit *-sert* 'spread', passive *-sreth*, to be analogic Celtic developments, the Indo-Iranian and Greek evidence for an unenlarged **ster-* seems so good that I think the Irish forms may rather be inherited. *-sreth* will reconstruct to **stṛto-* (: Skt. *-stṛta*) and *-sert* to **ster-t* (: Vedic *star*). Cf. Marstrander, *Observations sur les présents . . . à nasale* 40. It seems altogether unlikely that (*á*)*star*, representative of a type already retreating in Vedic times, should be analogic for an *astarīt*, formed on a productive pattern. Note also the Old Church Slavic aorist *prostrětъ* 'stretched out', which Stang, *Das slavische und baltische Verbum* 67 and 69 n. 2 very plausibly equates with Vedic *astar* and Irish *-sert*.

But it seems clear that PIE **o* next to labials and labiovelars has become υ in a number of Greek words. Examples where this has happened after *n* are ὄνυμα (Doric and Aeolic; cf. general Greek -ώνυμος and poetic νώνυμ(ν)ος), νύξ, ὄνυξ, and γυμνός.

In none of these words can the raising from **o* to υ be explained by supposing that the vowel is of laryngeal origin. As Hendriksen has pointed out, *Untersuchungen* 50, Celtic shows clearly that 'name' had no medial laryngeal. OIr. *ainm* and OWelsh *anu*, pl. *enuein* can only come from **(H)ṇmṇ*; **(H)ṇHmṇ* would have given something like OIr. **náim*, Welsh **naw(f)*. Although I am not competent to judge the Balto-Slavic, Albanian, Armenian, and Tocharian cognates, Gmc. *naman-*, Hitt. *la-a-ma-an*, and Indo-Iranian *nā́man-* (by Brugmann's Law) all point to **nomen-*. Latin *nōmen* hardly needs a lengthened grade; we already knew from forms like *cognōmen* and *ignōminia* that the word for 'name' had gotten contaminated with the root **ĝnō-* 'recognize' in Latin. There was probably an old **gnōmen* in Latin, formed in the same way as Gk. γνῶμα 'mark, sign' and Russ. *známja* 'standard, banner'. When this lost its initial *g-*, it and the old **nŏmen* 'name' were so close in shape and meaning that the form not supported by a series of related words disappeared from the language.[29a]

Incidentally, it may not be too bold to suggest that the original inflection of 'name' was nom.-acc. **nómṇ*, gen. **ṇméns* (> OIr. *anme*), parallel to the type of Skt. *dā́ru*, *drós* from **dóru*, **dréws*.

It thus seems clear that the source of Gk. ὄνυμα is **(H)nomṇ*. Attic-Ionic ὄνομα is evidently not an archaic form in which the *o* has not been raised, but rather the result of assimilation of ὄ . . . υ to ὄ . . . ο, which accidentally restored the word to an earlier shape; in -ώνυμ(ν)ος, with (long) open ω, this assimilation did not occur.[30]

Γυμνός must be somehow from **nog^{w}nós*, the source of Skt. *nagná*; this should have given *νυγνός (labiovelar delabialized after υ as in νύξ from **nók^{w}ts*). Despite Frisk's skepticism, *GEW* 1.333, I see no way to account for the attested consonantism except to suppose first a dissimilation to *μυγνός (or already at the stage **mog^{w}nós*? cf. Av. *mayna* and Hitt. *nekuma-nt-*[31]), and then a metathesis to γυμνός. Neither this word nor νύξ has any cognates pointing to a laryngeal; and Hittite *nekumant-* 'naked' and *nekut-* 'evening' seem to show that **nog^{w}nó-* and **nók^{w}t-* contained ablaut *o*.[32]

[29a] Cf. Hamp, *Latomus* 21.128, on Umbr. *nome*.

[30] Cf. Thumb-Kieckers 1.129 for assimilation of Ὀνυμοκλῆς to Ὀνομοκλῆς in the dialect of a Corinthian colony.

[31] Which is an *nt*-extension of a stem **nekuma-*, and does not contain the possessive suffix *-m/want-*.

[32] Although the seemingly unmotivated ablaut difference between Hittite and the non-Anatolian languages invites caution.

ὄνυξ is shown to have no medial laryngeal by Lat. *unguis*, OIr. *ingen*, Welsh *ewin*, which point to **ong*^{w}*h-*, **ṇg*^{w}*h-*, not **onHg*^{w}*h-*, **ṇHg*^{w}*h-*.[33]

Hence I see no reason to attribute the υ of στόρνυμεν directly to the phonetic nature of the laryngeal it continues. To judge by ὄνυμα, νύξ, γυμνός, and ὄνυξ, change of *no* to νυ was regular only before labial and labiovelar consonants (and was early enough to turn following labiovelars into plain velars). Its preservation and extension from *στάρνυμεν, *στάρνυμαι, *σταρνύμενος, etc., to other weak-grade forms were evidently favored by its falling together with the weak grade of the old **new/nu*-presents of monosyllabic roots of the type **ṛnéwmi*, pl. **ṛnumé*. The replacement of *ω by ῡ in the active singular, στόρνῡμι, etc., is the same development as replacement of *νευ by νῡ in the original **new/nu*-verbs; both are modeled on the *nā/na*-presents of the type δάμνᾱμι, δάμναμεν.

2.5.3. The ο of στόρνυμι, θόρνυμαι, ὄμνυμι, ὄλλυμι has (outside Aeolic and Arcado-Cypriote) evidently replaced the α attested in the θάρνυμαι of Hesychius. Its source is no doubt principally the aorists ἐστόρεσα, ἔθορον, ὀμόσαι, ὀλέσαι (with possibly some help from the futures ὀμοῦμαι and ὀλέσω), just as πέρνημι gets its vocalism from ἐπέρασα.

These aorists and futures in turn must owe their vocalism to analogic remodeling of the expected outcomes, full grade *eRo-C*, *eR-V*, zero grade *aR-V*. ἔθορον for *ἔθαρον was explained in § 2.2.4. The way in which *στερο- became στορε- (and *κερο- 'sate' became κορε-) is less clear. In ὀμο- and ὀλε- the situation is complicated still more by the possibility that one or both roots began with **O* (cf. § 2.2.1 for the latter). Important recent discussions are by Ruipérez, *Emerita* 18.386–407 (1950), and Kuryłowicz, *Apophonie* 207–8.

Kuryłowicz explains the ο of στορε- etc. by analogy to root allomorphs with *Rō* (e.g. ἔστρωτο) on the model of the types γενε- : γνη-, ταλα- : τλᾱ-; but he has to leave the final ε unaccounted for,[34] and one might object that for κορε-, ὀμο-, ὀλε- root forms *κρω-, *(ὀ)μω-, *(ὀ)λω- are not actually attested in Greek.[35]

Ruipérez avoids both difficulties by supposing that what happened was an actual metathesis of (*C*)*eRo*- to (*C*)*oRe*-, starting in the futures, where, before the creation of όω-presents, items like *στερόω were the only Greek verb forms with an όω-inflection. Metathesis to στορέω etc. resulted in inflection of a common type, and from the futures -*oR*(*e*)- spread to the aorists. For ὀμόσαι, with ο in both syllables, he assumes an original initial ὀ-; the future of this verb replaced *ὀμόομαι with *ὀμέομαι on the analogy of στορέω etc., but the aorist remained unchanged.

But here other, more serious difficulties arise. The postulated peculiarity of futures in -όω seems hardly sufficient to justify a metathesis that would disrupt the morphophonemic relationship of future (στορέ-ω) to aorist (*ἐ-στέρο-σα), and, granting such a disruption, it seems extremely unlikely that the relatively rare and peripheral future should have imposed its shape on the aorist, frequent and a basic member of the verb paradigm, rather than the other way around.[36] There is also the difficulty that the future of ὄμνυμι in Homer is not *ὀμεῦμαι, as Ruipérez's theory requires, but ὀμοῦμαι (4×), which has to be explained as 'un aticismo de la tradición'. But ἀμφιβαλεῦμαι, *Od.* 22.103, was not so Atticized, and it is hard to see why an *ὀμεῦμαι should have been. Surely rather ὀμοῦμαι is old; its agreement with the Attic outcome of a hypothetical *ὀμέομαι is what has preserved it from epicization to *ὀμεῦμαι, and it is the 3d sg. ὀμεῖται (in Homer only *Il.* 9.274, where Odysseus repeats Agamemnon's ὀμοῦμαι from 132) that has been made up (or altered) to fit the common pattern of -έω-futures (cf. Schwyzer 1.784 n. 3).

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[33] For νύξ and ὄνυμα cf. also Szemerényi, *AION* (Sez. ling.) 2.15 n. 4; in the text above Szemerényi rightly derives γυνή and κύκλος from **g*^{w}*enā*, **k*^{w}*ek*^{w}*los* through intermediate stages **g*^{w}*onā*, **k*^{w}*ok*^{w}*los*. Another Greek word with υ from **o* in labial environment is φύλλον, cognate with Latin *folium*, both from **bholyom*.

[34] ". . . le problème du timbre *e* d'aoristes comme ἐστόρεσα . . . attend encore la solution" (208).

[35] Of course the initial ὀ- of the last two can be explained by positing an initial **O*.

A third possible line of attack on the problem is suggested by the parallelism between στορε-forms in *O*-roots and ταμε-forms in *A*-roots (cf. besides ταμεσίχρως the futures θανέεσθαι and καμεῖται). Specht has suggested, *KZ* 59.56, that the root shape ταμε- arose from τεμα- first by assimilation to τεμε-, followed by analogic introduction of α into the first syllable from forms with a zero-grade ταμ-.[37] If we posit for *στερο- a similar tendency to assimilate to *στερε- (cf. the inverse assimilation to *ἐ-στόρο-σα, implied by Aeolic ἐστόροται), the relation with στρω-forms would be disrupted: *στερε-, with two ε's, would look more like a partner of *στρη- than of στρω- (cf. γενε- : γνη-). Now, on the model of the type γενε- : γνη- (ταμε- : τμᾱ- seems too rare to have played a role as a model), *στερε- might be replaced by στορε-, with the characteristic *o*-vocalism restored, albeit in historically the wrong place.

Like Kuryłowicz's, this explanation seems to require a prehistoric *κρω- to account for ἐκόρεσα. For ὀλε- one would need to start from *ἐλο- (since *ὀλο- would not be under any compulsion to change), which would make difficult the otherwise attractive connection with Hitt. *hullai*, and also require an unattested *λω-.[38]

Little as we understand the way in which **eRO* came to show up as *oR*ε in Greek, we can hardly doubt that the development took place, and surprisingly late at that. For, as observed by Ruipérez, *Études mycéniennes* 107 n. 3, the Minoan Linear B forms *rewoterejo* (PY Tn 996) 'for bathing' and *rewotorokowo* (PY Aa 783, Ab 553, Ad 676) 'bathpourers' (?) attest still in the 13th century the direct outcome of

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[36] Following the traditional view that στόρνυμι etc. are made by suffixing rather than infixing, Ruipérez supposes that these presents contain ορ from **ṛH*, and so would provide support for the new *o*-vocalism of the futures.

[37] Specht thinks of the present τάμνω, but more important was probably the original 3d plural of the aorist, *ἔταμαν (ἔταμον?) from *(*H*)*e-tṃA-ent* (*(*H*)*e-tṃA-ont*??); cf. Cardona, *Lg.* 36.502–7, and note that for θανέ-εσθαι the present had θνᾱ-, not θαν-.

[38] Unless one should want to surmise that an aorist ὀλόμᾱν, *ὄλοτο was 'thematicized' to ὀλόμᾱν, ὄλετο (as conversely the immediate ancestor of ἐγενόμᾱν is probably *ἐγενέμᾱν). This would explain why ὀμο-, with only an *s*-aorist, did not become *ὀμε-, but I cannot see how the new ὄλετο, with ε functioning as thematic vowel, could lead to replacement of *ὀλο- by ὀλε- outside the middle aorist.

PIE **lewO-* 'wash', compared with which the later λοϝε- of Homeric λοετρόν, λοετροχόος, λοέσσαι, etc. must be a morphologic innovation.[39]

Of the related words, Lat. *lauit* etc. and Celtic forms such as Gaul. *lautro*, OIr. *loathar* show the regular change of **ew* to **ow* in Italic and Celtic, and are problematic[40] only in that Latin and Gaulish show a further change of **o* to *a* next to *w*, the precise conditions of which have not been determined (I cannot accept Szemerényi's view, *KZ* 70.71, that the *a* comes from the perfect *lāuī* with *āu* from **ōw* by regular phonetic change; *lāuī* unconditionally represents an earlier **lawawai*). Hittite *lahhuwaai* seems to show the same metathesis of *hh* and *w* as does *pahhuwar*, *pahhur* 'fire' versus OHG *fuir* < **puHer-* and Gk. πῦρ, Toch. B *pūwar* < **puHr̥*.[41]

Difficult to reconcile with a PIE root **lewO-* are Arm. *loganam* 'je me lave', aor. *logaçay*, and the Germanic **lauþra-* of OIc. *lauþr* 'foam, soap' and OE *leaþor* 'soap, lather'. To judge by *arew*, *areg-akn* 'sun' (Meillet, *Esquisse*² 50), prevocalic **ew* did not become *og* in Armenian (despite the apparent falling together of preconsonantal **ew* and **ow* in *oy*, ibid. 44). But it is clear that the Armenian verb, with its nasal present, does not correspond directly to the simple thematic Lat. *lauit*, or to Gk. λοέω, nor can it be a direct continuation of a thinkable PIE nasal present **lunéOmi*. I suggest that it is rather an extension of an old present **lowOye/o-* of the ποτάομαι-type, directly parallel to the likewise intransitive Lat. *lauāre* (cf. Ernout-Meillet³ 615).

The Germanic word is difficult in that the suffix **tro* was regularly preceded by *e*-grade, not *o*-grade (*o*-grade is unobjectionable in **laugō* 'bath'). But *o*-grade before *-tro* is not completely unknown, witness OIc. *látr* 'litter'. Also, as long as we do not know the antiquity of the Celtic change of **ew* to *ow*, a cultural borrowing of pre-Celtic **lowətro-* before Grimm's Law and before the Germanic loss of medial **ə* cannot be ruled out. Such a borrowing would help to explain the curious shift in meaning from 'bath' to 'soap, lather'.

2.5.4. Whatever may be the correct interpretation for Sanskrit forms like *dadmás* beside *dadimá* and *jahimas*, I find no good evidence in Greek for disappearance of medial laryngeals between nonsyllabics. Words like τόλμα 'daring' or τόρμος 'hole' beside clearly seṭ forms like τελα-μών '(supporting) strap', τρητός 'bored' are probably relatively late creations which got their root allomorph from older words of the type βόλ-ος in which the *o*-grade of the root had regularly lost its final laryngeal before a suffix beginning with a vowel (Schwyzer 1.362, 492 ftn. 9; Kuryłowicz's explanation, *Apophonie* 201, ftn. 47, is less convincing).[42]

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[39] Here the difficulties mentioned above with proposed explanations of the shift become particularly acute, since a **lwō* seems not only unattested in all Indo-European, but very nearly unthinkable.

[40] Aside from the lack of a medial syllable in *lautro*, which leads me to suspect that the word is not really Gaulish, but rather a rendering of Germanic *lauþra-*.

[41] If the Hittite word is indeed related to λούω. As Frisk points out, *GEW* 2.139, the meaning is rather divergent. Benveniste, *Hittite et indo-européen* 14–15 (1962), clarifies the semantics but not the phonology of this equation.

[42] The words discussed by L. R. Palmer, *Die Sprache* 5.131–6, are at present still too obscure to be used as evidence for disappearance of a laryngeal not adjacent to a syllabic or for failure to lengthen a preceding syllabic.

2.5.5. It is generally supposed, and I agree, that the thematic optative suffix **oy* contains the zero grade of the athematic suffix **yeE*, **iE*. A strict application of the rules of PIE morphophonemics and of the phonetic rules I am advocating here would require a morpheme sequence **bher-o-iE-t* to appear as PIE **bheroyẸt*, Gk. *φέροε rather than the attested φέροι. It appears from this that the Indo-European thematic optative is a relatively recent formation; evidently *oy*-optatives were not put together in the dialect ancestral to Greek until **iH-C* had already become **ī-C*.[43]

3.0. Other claimed effects of laryngeals on Greek phonology that I know of seem to me either inconsistent with the developments I have so far outlined or not sufficiently superior to competing explanations to warrant their acceptance at this point as more than hypotheses to bear in mind for future research.

3.1. Theories according to which initial laryngeals either disappear before an initial consonant or combine with a following non-syllabic resonant to form a long, voiceless, or otherwise modified initial resonant are obviously inconsistent with my view that laryngeals not adjacent to syllabics in the same word always have vocalic reflexes in Greek.

3.1.1. In 1938 Edward Sapir suggested, *Lg.* 14.271–3, that Greek *h-* corresponding to **w-* and **y-* in other Indo-European languages (e.g., ἕσπερος : Lat. *uesper*, ὅς : Skt. *yá*) comes from sequences of laryngeal plus **w* and **y*, and that the extremely rare cases where Gk. ῥ- seems to correspond to **r-* (Sapir's only example was ῥύζειν 'growl, snarl' : Lat. *rugiō* 'roar', etc.) result similarly from laryngeal plus **r*. William M. Austin, *Lg.* 17.83–92 (1941), esp. 85 and 91–2, added the idea that metrically long initial μ, ν, and λ in Homer that cannot be accounted for by etymology (e.g. ν̄ιφάς from **snigʷh-*) or analogy (e.g. μ̄έγας after μ̄ικρός from **sm-*) owe their length to a preceding laryngeal. These views have been fairly widely accepted, e.g., by Sturtevant, *IHL* 76–8, Polomé, *Revue belge* 30.457, Zgusta, *Archiv orientální* 19.446, Lehmann, *PIEP* 33–4, 107.

However there seems to be no good evidence (other than the aberrant Greek initials which the laryngeals are set up to explain) that any of the words in question had initial laryngeals. This is well pointed out by Messing, *Harvard studies in classical philology* 56–7.194–6, who cites as an example Austin's comparison of Gk. λόφος 'crest' (with metrically long initial six times in Homer, against an equal number with short initial) with the family of Lat. *albus*. What possible semantic justification can such an etymology have?

3.1.2. I will not here discuss all the words proposed in this category by Sapir, Austin, and Sturtevant, but only some typical examples.

A word with a certain etymology is ἕσται 'wears' (digamma in Cret. ϝῆμα and

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[43] The same appears to be true of Baltic, to judge by the circumflex of the Lithuanian permissive. But conceivably the enigmatic *ā*-optative of Italic and Celtic comes from **-oa-* < **-oya-* < **-oyẸ-*, with syllabic laryngeal. The chronology in Germanic and Aryan cannot be determined: *-ai-* in these languages could come equally well from **-oī-* or from **-oyẸ-*.

Hesych. γέμματα), cognate with Skt. *váste*, Hitt. *ú-e-eš-ta* 'id.', and many other words, all furnishing no evidence for initial laryngeal. Hittite has neither prothetic vowel nor *h*-. Skt. has forms with short augment, RV *ávasthās*, *avasiṣṭa*, *ávāsayat*; *vāvasānā́* (2× in RV) can hardly be an old perfect with *e*-reduplication. The phonetic shape is wrong (**He-Hus*- should give Skt. **oṣ*-, *Hwe-Hus*- would give **voṣ*-), and the fact that the present *váste* (with the same full grade as *śáye* 'lies' and *ā́ste* 'sits') already has stative meaning strongly suggests that this root did not form an old perfect. As an intensive, based on the ordinary present participle *vásāna* (itself apparently analogic in place of the hapax *uṣāṇá*), *vāvasānā́* would be understandable (for the accent cf. Whitney, *Grammar* § 1013a).

An example of a word that has been, in my opinion, wrongly connected with a root with initial laryngeal is αἶνω, generally taken to mean 'winnow', and connected with ἄησι 'blows' even by such nonlaryngealists as Boisacq (s.v.) and Schwyzer (1.694). But the meaning 'winnow' is not at all certain – Frisk, *GEW* 1.41, says, " 'Die Körner von der Spreu reinigen', näherer Prozess unbekannt." If anything, this gloss seems too confident, to judge by the material assembled by Solmsen, *Untersuchungen* 272–4. The word occurs practically only in grammarians and lexicographers and their quotations from ancient literature. The meanings they give for it include not only words like πτίσσειν and κόπτειν, which can be interpreted as 'thrash', but also things like 'τὸ ἀναδεύειν καὶ ἀνακινεῖν κριθὰς ὕδατι φύροντα' (Eustathios) and 'τὸ τὰς ἐπτισμένας κριθὰς ταῖς χερσὶ τρῖψαι' (Hesychius).

Nor is it easy for me to see how αἶνω can be derived from a root **AweE*-. An old nasal present to this root seems not to be attested anywhere else, and if one did occur I do not see how it could be anything but **Au-ne-E-/Au-n-E*-, which ought to appear in Greek as *ὕνημι, *ὑνέω, *ὕνω, or the like. Analogic remodeling of **hū*- to **hwa*- or **hun*- to **hwan*- after full-grade **awē*- (like ῥαγῆναι after ῥήγνυμι) does not seem possible.

Lehmann has suggested, *PIEP* 60 (following Sievers, *PBB* 18.407 f., who interpreted the equations in terms of PIE **i̯*- and **j*-) [see also pp. 218], that Gk. ἥμερος 'tame' and ὅς 'who' are cognate with OHG *jāmar* 'pain, sorrow' and *jenēr* 'ille', and that the peculiar Alemannic forms without *j*-, *āmar* and *enēr*, are evidence for initial **Hy*- in these words. But neither equation is satisfying semantically; and the probable connection of Gk. ὥρα 'season' with OHG *jār* 'year', which keeps its *j*- in Alemannic, indicates that there is no correlation between Greek *h*- from **y*- and the Alemannic loss of *j*- (cf. Brugmann, *Grdr.*^{2} 1.282).[44]

3.1.3. Furthermore, it has to be observed that for long initial λ, μ, and ν the competing explanation of Schwyzer, 1.311, seems entirely adequate: at a time when long (voiceless) initial λh-, μh-, and νh- from **sl*-, **sm*-, and **sn*- were being replaced by short (voiced) λ-, μ-, ν-, it was quite easy (especially in the artificial and archaizing epic language) to pronounce long initial consonants in words which had etymologically simple λ-, μ-, ν-. Sapir's ῥύζειν 'snarl' is sufficiently onomatopoeic to be ignored in determining the fate of PIE **r*- in Greek. For the cases of Greek *h*- corresponding to **w*- and **y*- elsewhere, no nonlaryngeal explanation that I know of is really satisfactory, but so long as no good evidence is forthcoming that these words had initial laryngeals, sound methodology requires us to consider them an unsolved problem of Greek phonology.

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[44] So also Polomé, *Mélanges Mossé* 401–2.

3.1.4. Finally, there is the difficulty that if **Aw*- became *a*(*w*)- in ἄησι, the same sequence can hardly have become *h*(*w*)- in αἴνω. Sapir and his followers tried to resolve this difficulty by positing a distinction between reduced grade (noted **Ḁw*-, *A_e*w*-, or the like) and zero grade (**Aw*-) in PIE, deriving forms with prothetic vowel from the former and forms with modified initial resonants from the latter. The problem of a distinct Proto-Indo-European reduced grade ("schwa secundum") is outside the scope of this report, but I may say here that I see no good grounds for accepting a special reduced grade for Proto-Indo-European so long as no one is able to produce a set of environments, either phonologic or morphologic, in which reduced grade was regular in PIE, comparable to the environments that can be established for normal grade, zero grade, *o*-grade, and lengthened grade. Until that time, hypotheses relying on a PIE distinction between reduced and zero grade must be treated with the utmost skepticism.

Hence, at the very least, we must reject etymologies of the type ἄησι : αἴνω, in which the laryngeal is held responsible for prothetic vowel in one derivative of a root and for devoicing of a resonant in another. Initial laryngeals seem conceivable in words like ἕσται, with only the **hw*-alternant, and ϝίκατι : εἴκοσι, with dialectal variation between prothetic vowel and no prothetic vowel in the same word, only if we assume extra laryngeals which when initial before resonants behaved differently from the **A* of ἄησι and the **H* of ἐνεγκεῖν, additional laryngeals for which the only evidence would be the Greek forms they would be invented to explain.[45]

3.1.5. Only in the case of *h*- from "**y*-" is the situation a little more favorable, in that Greek has no cases of prothetic vowel before PIE "initial" **y*, so that, according to my view, there is no evidence in Greek for a PIE sequence **Hy*-. Rather than assume a gap in the distribution of PIE phoneme sequences here, we could play with the idea that **H*- before **y* did not become syllabic, and go on to tie this up with the general treatment of PIE **y* in Greek by supposing that before laryngeals not adjacent to syllabics were vocalized the cluster **Hy*- had become a single sound, which we might write *H^y-. Being prevocalic, this *H^y was not vocalized, but instead became *h*- (agreeing thus with **s*- rather than the ordinary prevocalic **H*-). But so long as there is no evidence to correlate Greek *h*- from **y*- with laryngeals, this hypothesis remains empty speculation.[46]

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[45] In *Archivum linguisticum* 10.85 (1958), R. A. Crossland suggests that the Attic development of **Hw*- was *h*- in all positions, and that words like ἄησι, ἄεσα, εἴργω come from a dialect where **Hw*- developed differently. For poetic words like ἄησι and ἄεσα this hypothesis seems possible, but hardly for prosaic words like εἴργω and εἴκοσι. Cf. § 2.4.4. I do not see that a laryngeal makes the apparently chaotic development of PIE *'*w*-' in different Greek words and dialects any less chaotic.

[46] I now (1962) think it possible that the Proto-Indo-European root for 'go' was **Eey*- after all

3.2. The development of (voiced) laryngeal plus *y to Greek ζ- suggested by Hammerich (*Laryngeal before sonant* 12–5) and Lehmann (*PIEP* 74–9) is subject to all the criticisms that I have made regarding a development of laryngeal plus *y to *h*-. Furthermore, a development of plain unvarnished PIE *y- to Greek ζ-, as posited by Pedersen (*Symb. phil. O. A. Danielsson* 263) and Sapir (*Lg.* 14.272), is phonetically perfectly acceptable, so that there is nothing here that laryngeals need to be imported to explain. Whatever the phonetic value of ζ in the different Greek dialects and of the sounds that preceded it in the prehistory of Greek, there is no doubt that ζ represents the outcome of pre-Greek **dy*- (e.g., Ζεύς), and that falling together of **dy*- and **y*- in an affricate sound is a commonplace of historical phonology – cf., e.g., Ital. *giorno*, *Giove* from *diurnum* and *Iouem* or Maharashtri *jūya* 'play' and *ja* 'who' corresponding to Skt. *dyūtá* and *yá*. The difference in treatment between initial and medial *y which Pedersen and Sapir posit is no serious objection to their view. Lehmann's parallel of PIE **w* (76), which was lost everywhere in most Greek dialects, ignores the great chronologic gap between the restructurings of PIE *y and **w* in Greek.

Hammerich does not give any supporting evidence that the Greek words with *z*- from **y*- actually had laryngeals, and that which Lehmann gives seems to me rather weak. Although Zgusta has already subjected it to a good examination in his review article of Lehmann's book, *Archiv Orientální* 23.184–204 (1955), another discussion may not be out of place.

3.2.1. For Gk. ζωσ- 'gird', Lehmann accepts Sturtevant's equation (*IHL* 51) with Hitt. *iš-ha-a-i* 'binds' and Luw. *hi-iš-hi-ya-an-ti* 'they bind', according to which the Anatolian form would come from **yiγz*-, with metathesis of **γz* to *-šh-* and in Hittite dissimilatory loss of the initial *h*- (and, I take it, some kind of a *y*-suffix), while Greek ζωσ- and other non-Anatolian forms like Lith. *júostas* 'girt' would come from **yγoγz*-. Aside from the vagueness about the suffix and the uncertainty as to whether there really was an Anatolian metathesis of **Hs*, this etymology is semantically a good deal less satisfying than the common view that the Anatolian words go with Skt. *syáti* 'binds', a view which would largely account for their *-ai-* and *-iy*(*a*)-. Luwian *hišhiy*(*a*)-, which is Sturtevant's only reason for separating the Anatolian words from the synonymous Indic one (and Lehmann's only evidence for a root-initial laryngeal) may be a reduplicated formation with the $C_2V\text{-}C_1C_2$- pattern of Skt. *tíṣṭhati*, as has been suggested by Crossland, *TPS* 1951.101 ftn. 1.

3.2.2. As evidence for an initial laryngeal in the root of ζυγόν, ζεύγνυμι, etc., Lehmann alleges instances of Vedic lengthening before the root *yuj*. But the lengthening seems too sporadic to be, in my opinion, very significant for the Proto-Indo-European shape of the root. According to my count of the forms cited in

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(see § 3.3), so that ἴασι, ἰών may reflect **Eyenti*, **Eyónt*-. If so, the phonologically regular forms would probably be *ἔεντι, *ἐόντ- (or possibly *ἄεντι, *ἀόντ-), not, as I suggested *Lg*. 36.496, *ζέντι, *ζόντ- or *ἕντι, *ὄντ-. The replacement of *ἐ- by the more characteristic ἰ- would then be exactly parallel to the replacement of *ἔομεν by ἴομεν in the subjunctive. The hypothesis of § 3.1.5 thus becomes even more vacuous than it was in 1960.

Grassmann's *Wörterbuch*, the augment appears as short *a* 29 times before *yuj* in the Rig-Veda. Long are *āyunak* (1.163.2), *ā́yukta* (5.17.3), and *ā́yukṣātām* (1.157.1, 10.35.6). Of these, the three instances with *ā́* can be interpreted as containing the preverb *ā*, *ā́*; and *āyunak*, in a hymn characterized by Arnold as belonging to the latest, "popular" period of Vedic composition, may be an imitation of forms like *ā́yukta* and *ā́yukṣātām*, misunderstood as having a long augment and no preverb (cf. Wackernagel, *Ai. Gr.* 1.46, where both *āyunak* and *ā́yukta* are explained as imitations of verbs with long augment before *v*).

The word *abhiyúj* 'attack(er)' occurs six times in the Rig-Veda, three times (4.38.8, 5.4.5, 6.25.2) in the break of a trishtubh verse, and metrically unobjectionable as written (although *abhīyúj* would be acceptable also). The remaining three occurrences are of *abhiyújas* in gayatri cadence (3.11.6, 8.45.8, 9.21.2), where a long second syllable would definitely make better meter; of these Arnold says, *Vedic Metre* 126, "it may be right to restore *abhīyúj*." But in the same breath, Arnold points out that the metrical behavior of *abhiyúj* is the same as that of *purubhúj* (and *puru-*, *purū-táma*), where it seems impossible to attribute lengthening of *puru-* to *purū-* to initial laryngeals in *bhuj* and *-táma*. It is much more reasonable to see in all of these cases instances of Wackernagel's "rhythmic lengthening" of a short syllable between two short syllables, a lengthening connected with laryngeals only in that lengthening of the final vowels of *abhi* and *puru* before morphemes genuinely beginning with laryngeals helped to make alternants *abhī* and *purū* available for use wherever metrically convenient.

Other compounds with a form of the root *yuj* as second member do not seem to offer any support for an initial laryngeal in the root. Of the numerous compounds containing the root *yuj* in the Rig-Veda whose first element ends normally in a short vowel, I have examined only those whose second element is a root noun *yuj*, viz. *aruṇayúj*, *aśvayúj*, *ṛtayúj*, *prayúj*, *brahmayúj*, *mitrayúj*, *rathayúj*, *sayúj*, *suyúj*, *svayúj*. Out of 43 occurrences, I find only one (*rathayújas*, 8.33.14) that would be metrically improved by reading a long vowel before *y*.

Hittite *i-ú-ga-an*, 'yoke', not **hi-ú-ga-an*, **a-i-ú-ga-an*, or the like, is embarrassing to the view that Gk. ζυγόν had an initial laryngeal. Hence Lehmann (77), basing himself on an old suggestion of Goetze's made in *IF* 42.328 (1924), suggests that the Hittite word is borrowed from Indic, pointing out that "no evidence has been supplied to overthrow the thesis that it was borrowed" and that Hittite has borrowed from Indic "numerous . . . terms relating to horses and to horsemanship". But Goetze's only reason for thinking the word might not be native Hittite was that in those days it was believed that Hittite neuter *a*-stems were regularly endingless in the nominative and accusative singular; Goetze cited as an example *adanna* 'Speise'. *adanna* is now known to be an infinitive meaning 'to eat', and *yukan* has beside it the noun *pedan* 'place' and adjectives like *dannattan* 'empty' beside *dannatta* (Sturtevant, *Hitt. Gr.*^{2} 85). Hence there is no reason (other than the shape of the initial) to consider Hittite *yukan* a loan. As Goetze already pointed out, *loc.cit.*, and as Kronasser has emphasized, *Vgl. Laut- u. Formenl. d. Heth.* 41, *yukan* does not belong to the group of specific horse words that are clearly Indic loans; it is not limited to texts dealing with the training and care of horses (does it occur in them at all?), but occurs in context with oxen (cf. Sturtevant, _JAOS_ 54.400).

To suppose on the basis of ζυγόν . . . εὖ οἰήκεσσιν ἀρηρός 'a yoke well fitted with _oiāxes_' (_Il._ 24.268–9; οἴηξ presumably means here 'ring for the reins to pass through', i.e. part of the mechanism for guiding a wagon, in some sense comparable to the tiller of a boat) that the original meaning of Gk. οἴαξ 'tiller, helm' had something to do with 'yoke' (e.g. 'yoke fitting'?) and that the word is from *_oiw-āk-_, containing a theme *_Oeyw-_ in ablaut with an *_Oyu-_ in ζυγόν (Dumézil, _BSL_ 39.192–3 [1938], reporting an idea of Benveniste's), involves too many untestable assumptions for the word to be usable as evidence for an initial laryngeal in ζυγόν.

3.2.3. A third Greek word with ζ- from *_y-_ is ζειαί 'triticum monococcum, spelt', whose cognates include Skt. _yáva_ 'barley'. As evidence for laryngeal Lehmann cites the long _ū_ of Vedic _sūyávasa_ 'having good grass' (RV 1.42.8) and _sūyavasyú_ 'eager for good pasture' (RV 6.27.7). But in five cases in the Rig-Veda (1.190.6, 2.27.13, 6.28.7, 7.18.4, 10.106.10) _sūyávasa_ is to be read with the short _u_ that would be expected if _yávasa_ 'grass, pasture' does not have an initial laryngeal (Arnold 127). Hence _sūyávasa_ and _sūyavasyú_, like _abhīyújas_, are probably due to lengthening for metrical convenience of a vowel before a morpheme boundary. The connection of Hom. ἦα 'chaff' (also written εἰαί, εἶοι in Hesychius) which Lehmann tries to revive as additional evidence for a laryngeal in ζειαί lacks semantic plausibility, and I do not understand how Lehmann proposes to derive ἦα from *_Heye-_ by calling the η a "Homeric development" (78). In any case, the only evidence for laryngeal this equation would furnish is the "initial" vowel of ἦα.

3.2.4. Lehmann believes that an initial laryngeal for Gk. ζέω 'boil' is indicated by the cognate Skt. participle _yastá_ in place of the expected *_iṣṭá_. Lehmann says (78), "When we compare Skt. _paktá_[47] we infer that the initial of _yaktá_ [read _yastá_], like the initial _p-_ of _paktá_ could not become vocalized when the _e_ of most _to_-forms was lost. I assume therefore that the initial was not simply _y-_ but rather a cluster of laryngeal and _y_." I can hardly believe that Lehmann has thought through what he is suggesting here; at least he fails to give me any basis for perceiving why he thinks a root *_Hyes-_ could not form a _tó_-adjective *_Histó_ in the same way that _preḱ_ 'ask' and _swep_ 'sleep' formed *_pr̥ḱtó_ and *_suptó_, if we may judge by Skt. _pr̥ṣṭá_ and _suptá_. If he is trying to suggest that the cluster *_Hy-_ developed into a "palatalized laryngeal" or the like, whose palatal component could not become syllabic [i] when the sound changes leading to PIE quantitative ablaut occurred, it is not obvious why *_H_^{y}- itself did not assume syllabic function as laryngeals usually did when not adjacent to syllabics; I would expect a hypothetical *_H_^{y}_stó_ to become Skt. *_iṣṭá_ in the same way that *_stHtó_ became _sthitá_.

Actually, the shape of Skt. _yastá_ is due partly to the general tendency to give up samprasarana ablaut of the type *ya* : *i*, and partly to the existence already of two other *tá-* participles of the shape *iṣṭá*, viz. *iṣṭá* 'sacrificed' and *iṣṭá* 'desired' (Sommer, *Griechische Lautstudien* 140–1, Wackernagel-Debrunner, *Ai. Gr.* 2.2.566).

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[47] A form which seems not to occur (the "past participle" of _pac_ is _pakvá_). A Vedic example of what Lehmann evidently had in mind is _sattá_, to the root _sad_ 'sit'.

3.2.5. Lehmann says that Gk. ζύμη 'leaven' (whose probable cognates include Skt. *yū̃ṣ* 'soup' and *yáuti* 'mixes') is derived from the same root as ζυγόν and hence had an initial laryngeal. As I have shown above, I do not think the evidence for an initial laryngeal in ζυγόν is satisfactory, so that evidence for an initial laryngeal in ζύμη is in turn unsatisfactory whether or not we accept Lehmann's connection of the two words.

3.2.6. ζόρξ 'roe, gazelle', cognate with Welsh *iwrch* 'roebuck', is the only other Greek word with ζ- that has a convincing etymology indicating **y*-. But there are no cognates in languages which might give evidence for or against an initial laryngeal.

3.2.7. A word not listed by Lehmann is ζέφυρος 'west wind', which an old etymology connects with οἴφει, Skt. *yábhati*, Ru. *ebët* 'futuit'. Recently this equation has been revived by R. Ambrosini, *Annali della Scuola Normale Superiore di Pisa* 25.142–7 (1956), and supported also by Jaan Puhvel, *LIEV* 71–2 (to whom I am indebted for my first knowledge of Ambrosini's work). But the semantic foundation of this connection seems extremely weak. From the fact that the west wind was reputed in Greek folklore to be able to fecundate women and mares and that unfertilized eggs were sometimes called ὑπηνέμια (ᾠά) or ζεφύρια, and thought to be produced from wind, it seems to me that it follows only as a remote possibility that ζέφυρος originally meant 'fututor'; that this was the original meaning is by no means a necessary conclusion. Indeed, as W. Winter has observed to me, the fact that ζεφύρια ᾠά, Lat. *ōua uentī*, NE *wind eggs*, NHG *Windeier*, 'eggs without shell' (cf. Kluge-Götze s.v. *Windei*), are not fertile is evidence against ζέφυρος meaning 'fututor' – more likely the Greeks named infertile eggs so because of the gas that collects inside them as they rot. The ancient connection of ζέφυρος with ζόφος, defended by Frisk, *GEW* 1.611, remains much more plausible.

Another difficulty is that οἴφει does not establish beyond reasonable doubt that the root of *yábhati* and *ebët* was **Oyebh-*, since an unmotivated Schwebeablaut to **Oeybh-* is not a matter of course. Brugmann's suggestion, *IF* 29.238 n., 32.326, that οἴφω contains a preverb ὀ- 'close to, with' (accepted by Schwyzer 1.722 n. 1) is semantically plausible and permits us to explain Gk. -ιφω and Slavo-Indic **yebhō* as different thematicizations of an original **(H)yébh-mi*, **(H)ibh-mé*.[48]

3.3. In the previous version of this report I tried to show here that Greek provides positive evidence against the view of many laryngealists that Proto-Indo-European had no words beginning with vowels. I have now changed my mind about both the Greek words that I then interpreted as necessarily continuing Proto-Indo-European forms with initial vowel, not preceded by laryngeal. I now think that Greek evidence need not prevent linguists who set more store on parsimony of syllable types than on parsimony of phonemes per word from prefixing an **H*- to every PIE "**e*-".

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[48] Specht's suggestion of metathesis, *KZ* 59.121 n. 2, seems helpful only if we suppose that the Slavic and Indic forms are from **yobh-*, with a surprising medial **o*. Of the other words mentioned by Puhvel, loc. cit., ζητρός and ζωρός may be cognate with Skt. *yātar* and OCS *jarъ*, but these equations provide no additional evidence that ζ- is from **Hy-* rather than plain **y-*; even without Lejeune's very plausible view that the sign traditionally read *za* is really *ga*, the precise analysis and origin of Cypriote *u-wa-i-se za-ne* are extremely unclear; and I cannot put much faith in a base **Ay-eE-w-* underlying the -ζη- of αἰζηός, αἰζήιος, μινύζηον – the semantics of at least the first two is unclear, and an **AeyEwon-* would give *ἀεϝών, not αἰ(ϝ)ών.

My first example was ἐστί 'is', where I thought that Doric ἐντί and Attic ὄντ- had to come from **senti*, **sónt*-, without initial laryngeal, and that Linear B *eesi*, Hom. ἔασι, and non-Attic ἐόντ- etc. must reflect forms with analogic full grade. But I am no longer sure that ἐντί and ὄντ- cannot come from Proto-Greek **heenti* and *(*h*)*eónt*-. These forms have recently been discussed by Ernst Risch, *Museum Helveticum* 16.224 (1959), and Klaus Strunk, *Glotta* 38.203–9 (1960). Risch notes that Linear B *eesi* makes it extremely likely that Attic-Ionic εἰσί is from *ἐενσι (reshaped in Hom. ἔασι), not *ἐνσι, and adds that perhaps Doric ἐντί is also from *$e^{h}enti$; "Das ε des Griechischen repräsentiert also wie beim Partizip ἐών, beim Plur. εἰμέν, ἐστέ und beim Opt. die Reduktionsstufe." However he does not say how he supposes that Doric ἐντί and Attic ὄντ- would have lost their initial vowels. Strunk is more conservative. He thinks (208) that Doric ἐντί, Boeotian-Thessalian *hεντί, is an archaism of West Greek against East Greek *ἐενσι, and considers (204 n. 6) the participial forms ἐόντες etc. "unursprüngliche Restitutionen, die allenthalben ausser im Attischen vorkommen".

But against Strunk (and my own view of 1960) is the geographic and chronologic distribution of ἐών and ὤν. If the Attic form of the participle is an archaism, it is at least peculiar that Linear B already has the form with ἐ- (*apeo* PY An 18; *apeote* KN B 810, 823, PY An 724; *apeasa* KN Ap 633) and that Homer has the "archaic" form only three times in the Odyssey (Chantraine, *Grammaire homérique* 1.287), one of which (7.94) is in a notoriously late development. Why should Attic alone of the "East Greek" dialects preserve a form that had already been given up in the language of Mycenaean bookkeepers and in the archaic Ionic that is the principal layer of Homer?

Furthermore, Schwyzer, 1.253 (cf. also 676), points the way to a possible phonetic explanation of ὄντ-. After giving examples of words in Ionic (and other dialects) in which εο before consonant cluster was replaced by ο, e.g., Ἐτοκλέης, ὁρτή, he adds that this process in general seems older than contraction, dating from a time when "man noch geneigt war, langen Vokal vor Konsonantengruppe zu meiden . . .; später ertrug man φιλοῦντες . . . u.ä., die im Anschluss an φιλοῦμεν, φιλοῦσι usw., oder als Kontraktionen aus erhaltenen oder wiederhergestellten φιλέοντες usw., *vielleicht auch im Attischen* (italics mine-WC) Formen wie *φιλ(*e̯*)οντες ausmerzten."

If we admit for Attic such a shortening of ἐόντ- to ὄντ- in the first place, the contrast with φιλοῦντες etc. can be neatly explained by the absence in "be" of forms in Attic outside the participle with (uncontracted) ἐο- or (contracted) οὐ- that could serve as a basis for restoration. The difficulty, of course, is that there seem to be no other examples of ο from εο in Attic, and that dialects that provide examples of the development in other forms fail to do so in ἐόντ-.

For the 3d plural the dialectal distribution is not so cogent, but the phonetics seem easier. There is no a priori reason why *ἑντί[49] could not be a West Greek archaism, as Strunk supposes. But a three-syllable enclitic *ἕεντι, with two like vowels in succession, might well have been subject to contraction especially early, before the development of the three-syllable accent rule that accounts for the accent of Hom. ἔασι and before a sequence ε̄ντ was tolerated, so that the result of the contraction was not *ἑ̄ντι but *ἑντι.[50] The shortening is if anything less radical than that of ἔσσεται to ἔσται, which is already common in Homer.

For Pre-Greek we could then posit *esenti, *esónt-, developing regularly through *ehenti, *ehónt- into *heenti, *(h)eónt-.[51] Of these the former was shortened in West Greek into *ἑντι (whence ἐντί, *ἑνθί) but kept in East Greek as *(h)εενσι, eventually deaspirated and contracted to εἰσί.[52] The participle was generally kept (or reformed to ἕντ- after the 3d plural[53]), but aphaeresized in Attic to ὄντ-.[54]

But the problem remains, whether to take the initial vowel of *esenti and *esónt- as the result of generalized full grade in a root *es- : s- or as the reflex of an initial laryngeal in a root *Ees- : Es-. I do not see that the evidence yet available points unambiguously in either direction. In favor of analogic extension of full grade one can argue that the laryngeal explanation itself probably requires analogic replacement of *a- by *e- in zero-grade forms (cf. § 2.5.1), so that one gains nothing over assuming replacement of *Ø- by e-; and in general one should not supply reconstructed forms with more phonemes than are absolutely necessary.

In favor of a laryngeal one can argue that it is somewhat surprising that a language as early as Greek should have generalized full grade es- to all zero-grade forms in this verb (as opposed to merely leveling an alternation of *es- and *as-). Old Persian has 1st pl. *amahy*, but keeps 3d pl. *ha(n)tiy*; Latin has *estis* but *sunt*; Old Church Slavic *jesmъ*, *jeste*, *sǫtъ*; Proto-Germanic **izum*, **izud*, **sindi*. *S*-forms are remarkably tenacious, as witnessed by, e.g., modern French *sont*, NHG *sind*. Hittite *ašanzi* is not a clear parallel for analogic spread of full grade in Greek. In the first place, calling it a full-grade form would be begging the question, since if the root is **Ees-*, *ašanzi* will be from **Es-*; and secondly, if *ašanzi* is considered to be assimilated from **ešanzi*, then it becomes possible to explain almost all 'ablaut' in Hittite verbs by vowel assimilation, and one can say that in Hittite verb ablaut was disrupted so much earlier and more thoroughly than anywhere else that Hittite developments are not cogent parallels for other Indo-European languages. Old Norse is the first Indo-European language I know of that has clearly spread full grade to the 3d plural of 'be' (*ero*), and even here the zero grade is maintained in the optative, *sé* etc.

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[49] Rough breathing assumed since W. Schulze, *Kl. Schr.* 399, to account for the θ of 3d plurals in Boeotian and Thessalian.

[50] Unlike the thematic subjunctive, there was here no compelling morphological reason for a form with long vowel before ντ.

[51] If it is true, as Sommer, *Griechische Lautstudien* 24, suggested, that medial *-h- before an accented syllable did not shift to the initial syllable, then the uniform smooth breathing and ντ of the participle in all dialects may be phonologically regular. Otherwise the smooth breathing in the participle must be analogic, like that of the 3d plural, as generally supposed; and the ντ (not *νθ) of participles in Boeotian and Thessalian can be accounted for by supposing that aspiration was moved only one syllable: *ἑντί became *ἑνθί, but *ἑόντ- did not become *ἑόνθ-.

[52] But εἰσί may well, at least in part, continue an East Greek *ἕνσί, so that the shortening of *εεν- would be about contemporary in all dialects. Note that εἰσί cannot directly continue an *ἕενσι, reaccented by the three-syllable accent law.

[53] The Lesbian ἔσσα (Sappho 121 LP) mentioned by Schwyzer 1.678 seems unmetrical and has been emended to ἔοισα (Thumb-Scherer 2.106).

[54] Note that Attic seems to have been especially early and thorough in getting rid of hiatus; cf. e.g., ορχεστον already on the Dipylon jug of the 8th century.

There is also the matter of the imperfect plural. The analogic explanation that I gave, *EFL*^{1} 131 n. 13, for the long vowel of ἦεν and Skt. *ā́san* is somewhat forced; it would certainly be easier to derive these forms direct from *(*E*)*é-Es-ent*, if such a pre-form is acceptable in other respects (and similarly Skt. *ā́yan* direct from *(*E*)*é-Ey-ent*).

These arguments for a laryngeal seem somewhat more powerful than the arguments against one. Thus: if Doric ἐντί and Attic ὄντ- can be later developments of *ἐεντι and ἐόντ-, the verb 'be' was probably uniformly **es-* in pre-Greek.[55] If so, it seems slightly more likely that **es-* in zero-grade forms is a reflex of **Es-* (probably analogic for **as-*) than that it is analogic for **s-*. If all this is so, then there is no good reason to reject the view of Benveniste, Kuryłowicz, etc. that the minimal Indo-European root was *CeC*, and a super-short *eC* did not exist. But the matter is certainly not simple or certain.

My second example of a Greek word with initial vowel coming from Proto-Indo-European initial vowel was the accented oblique first singular pronoun, ἐμέ, ἐμοί, etc. In 1960 I thought these forms were in ablaut with the enclitic με, μοι, etc. Since then I have revised my views on the structure of the Indo-European personal pronouns. Briefly, my present view about the forms relevant here is that there were enclitic oblique forms, sg. **me*, **te*, refl. **se* (these three accusative only), du. **noH*, **woH*, pl. **nos*, **wos*. Corresponding accented forms were made by adding a morpheme *-wé/-mé*, which entailed zero grade of the preceding pronoun stem: 2d sg. **t-wé*,[56] refl. **s-wé*, du. **ṇH-wé*,[57] **uH-wé*,[58] pl. **ṇs-mé*, **us-mé*. For 1st singular one would expect *_m-wé_ or *_m-mé_. Skt. _mā́m_ suggests *_mé_, which I take to be a development of pre-IE *_m-mé_.[59]

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[55] ἴσθι I think is assimilated from *ἔσθι, whether that be analogic for *ἄσθι or for *σθί; the fixing of assimilated ἴσθι as 'be' and unassimilated *ἔσθι as 'eat' provided a handy differentiation of two homonyms, without at first leading to a new homonymy with (ϝ)ίσθι. I do not see any compelling reason for taking Aeolic and Homeric ἔον as an augmented form with zero grade (Schwyzer 1.677) rather than as an augmentless form based on the root **e*(*s*)-. The form's occurrence in a prose inscription seems irrelevant for the problem of its origin, since it could have been reinterpreted as containing an augment.

[56] The similarity to the *u* of nom. **tú* (*túH?*) is probably accidental. Indeed, Hitt. *zik* and Palaic *ti* suggest that the original form of the nominative was **tí* (*tíH?*), and that the *u* of non-Anatolian languages comes from du. **yúH*, pl. **yúHs*, with perhaps some help from the *w* of the oblique singular. Like 'I', 'we', and 'ye', 'thou' appears to have had separate stems in nominative and oblique in Proto-Indo-European, so that the difficulty seen by Tedesco, *Lg*. 22.192 (1946), in assuming separate stems for 'ye' and 'you' need no longer trouble us.

An accented reflexive and singular genitive appears to have been formed (superficially, at least) by combining the full grade of the oblique stem with the same suffix as the accented accusative had: Skt. _máma_, _táva_ are from *_méme_, *_téwe_, and a reflexive *_séwe_ is indicated by Gk. ἑός, which stands in the same relation to it as τεός does to *_téwe_.[60] The 1st singular *_méme_ was preserved unchanged only in Sanskrit;[61] elsewhere it was dissimilated in one way or another. Balto-Slavic and Iranian changed the second _m_ to _n_. Latin dropped it altogether – _meus_ is from *_me_(_m_)_os_, inflected, as _tuus_ and _suus_ are from *_tewos_, *_sewos_. In Greek and Armenian, it was the first nasal that was lost: Arm. gen. _im_ < *(_m_)_eme_, Gk. ἐμός < *(_m_)_emós_.[62]

Hence it appears that the ἐ- of Greek ἐμός in fact corresponds to the ε of με, and was thus not initial in Proto-Indo-European, and so not relevant to the problem of whether or not Proto-Indo-European had initial vowels. As for ἐμέ (on which appears to be based Hom. ἐμεῖο, Att. ἐμοῦ; cf. σέο, not *τεέο) and ἐμοί, the initial ἐ- must be a prothetic vowel of non-laryngeal origin, since I still hold it impossible to derive both ἐμέ and με from *_Hme_.[63]

3.4. Jaan Puhvel has suggested, _Lg_. 29.454-6 (1953) and _LIEV_ 41–52 (1960), that the desiderative suffix that underlies the Greek σ-future began with a laryngeal. This would provide a simple explanation for "liquid futures" of the type μενέω 'I

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[57] Continued in Skt. _āvā́m_ and Attic νώ < *νωϝέ. Is Homeric νῶϊ a corruption of *νωέ?

[58] Skt. _yuvā́m_ for *_ūvā́m_ after nom. _yuvám_, like _yuṣmā́n_ for *_uṣmā́n_ after nom. _yūyám_. Gk. σφώ remains enigmatic. Germanic *_unkiz_ and *_inkwiz_ are probably also from *_ṇHwé_ and *_uHwé_, with a development of *_-Hw-'_ to _-kw-_ as in *_kwikwaz_ from *_g_^{w}_iOwós_; but there has been considerable morphologic remodeling, the details of which I do not now understand.

[59] *_mé_ rather than *_ṃmé_ suggests that *_mm-_ acted more or less like *_ml-_, *_wr-_, *_wl-_, *_wy-_ in regard to syllabification.

[60] I suspect the correct analysis is rather _mé-m-e_, _té-w-e_, _sé-w-e_; _-e_ is the same adjective-forming suffix as in _deyw-ó-s_, _néw-o-s_, _swēḱur-ó-s_, etc., uninflected in the 'genitive', inflected in the 'possessive adjective'. There were also shorter adjectives *_mós_, *_twós_, *_swós_, reflected e.g. in Gk. σός, ὅς and OCS _mo-i_, _tvo-i_, _svo-i_. Gk. ἐμός probably continues both *_memós_ (dissimilated) and *_mós_ (with prothetic vowel).

[61] And perhaps also British, since I see no way of telling whether the _N_ of Welsh _fyN_ goes back to *_m_ or to *_n_.

[62] Cf. Schwyzer 1.601.

[63] Likewise the initial vowels of the related forms in Armenian and Anatolian must be prothetic; cf. especially the contrast in Hittite of _ammuk_ and _-mu_. Or conceivably *_mm-_ developed to _Vm-_ in these languages instead of being simplified, as it was in Skt. _mā́m_ and Balto-Slavic *_ma-jas_. I here retract everything I said in my comments on Winter's Armenian Evidence, _EFL_^{1} 41. As I noted above, _im_ seems dissimilated from *_meme_, and _is_, _inēn_, _inew_ evidently have a prothetic vowel. _Inj_ appears to have been metathesized, *_meǵh-_ > *_emǵh-_, since *_emeǵh-_ ought to give Arm. *_imez_. As for _inn_, Gk. ἐννέα 'nine', Szemerényi has shown me that I was excessively careless to suppose an unmotivated Schwebeablaut between *_enwṇ_ in Greek and Armenian and *_newṇ_ in the rest of Indo-European, and that *_enwṇ_ will not explain the shape of _inn_ anyhow (cf. his _Studies in . . . Numerals_ 89). I now accept *_enewṇ_ as the immediate source of _inn_ and ἐννέα, with one of the prothetic vowels for which laryngeal origin is not disprovable, but where the prothetic vowel itself is the only evidence in favor of a laryngeal. I wish to thank Szemerényi also for some advice about the problem of the verb substantive – he is however not responsible for any errors in my present views.

shall remain', which could be straightforwardly derived from *_men-Hso-A_; also it would bring the Greek formation closer to that which appears in Sanskrit desideratives and Irish futures of the type Skt. _jíghāṃsati_ 'desires to slay', OIr. _génaid_ 'will wound', from *_g_^{w}_hi-g_^{w}_hṇ-Hse-ti._ But a laryngeal initial in the Greek future suffix can be reconciled with the lack of epenthetic vowel in futures like ἄξω 'I shall lead', ἔσσομαι 'I shall be' only by the unsatisfactory expedient of schwa secundum. That the difference does not depend on whether the root ended in an obstruent or a resonant is indicated by πεσέομαι 'I shall fall' (for or from *πετέομαι), a "liquid future" formed to the disyllabic root *_petH-_; evidently the contrast of ἄξω and πεσέομαι reflects the difference between *_Aeǵ-so-A_ and *_petH-so-_. Hence it seems better to adhere to the common view that the Greek future suffix -έω spread from disyllabic roots in much the same way that Skt. _-iṣyáti_ spread at the expense of _-syáti._ If, as seems likely, all the Indo-European _s_-desiderative formations are etymologically related, it may be that the variant seen in Skt. _jíghāṃsati_, OIr. _génaid_, and the like gets its initial laryngeal from recutting of desideratives of disyllabic roots already in PIE.

4.0. Other alleged developments of laryngeals in Greek, while not necessarily any better founded positively than those I have just been discussing, would not actually conflict with the developments that seem to me most likely.

4.1. It has been suggested that where Greek φ, θ, χ correspond to _ph, th, kh,_ or _ch_ in Indo-Iranian or to reflexes of plain voiceless stops elsewhere (i.e., the traditional "voiceless aspirates"), the Greek consonant actually reflects a plain stop followed by a laryngeal (Sturtevant, _Lg._ 17.1–11 and _IHL_ 83–5; accepted by Lehmann, _PIEP_ 83). The view has been rejected by Messing, _HSCP_ 56–7.182–3, and treated with considerable skepticism by Polomé, _Revue belge_ 30.465–7. Sturtevant's attempt to explain the Greek aspirated perfect as reflecting initial laryngeals in some of the personal endings (_Lg._ 16.179–182) has been adequately disposed of by Kent, _Lg._ 17.189–93, who essentially repeats the information to be found in Schwyzer 1.771–2.

4.1.1. The positive evidence for laryngeals following any of the Greek aspirates involved here seems in fact extremely weak. The only example of any plausibility seems to be the 2d singular (perfect) personal ending -σθα (e.g., οἶσθα 'thou knowest'), whose cognates include Indo-Iranian _-tha_ (e.g., Skt. _vettha_), Hitt. _-tta_ (e.g. _da-at-ta_ 'you took'), OLat. _-istei_ (_gesistei_), and Germanic _-þ_ (OE _earð_ 'thou art'). Evidence for laryngeal here is the Indo-Iranian aspirate (cf. also the Sanskrit 2d singular middle ending of secondary tenses _-thās_) and the Greek _a_-vocalism.[64] But the Indo-Iranian aspiration here is possibly secondary (cf. Kuryłowicz, _Apophonie_ 381–2), and the

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[64] _A_-vocalism apparently also in Tocharian, e.g., 2d sg. mid. A _-tār_, B _-tar_. The secondary tenses of Celtic are too obscure for OIr. _no-bertha_ 'ferres' and the like to be used as evidence for *_A_; the slightly less obscure ending of the 2d singular deponent imperative, e.g., _cluinte_ 'hear' (not *_cluintea_), suggests rather that the _t_ of the 2d singular could be followed by an *_e_ in Celtic. I do not accept Wackernagel's suggestion that the Greek aorist passives in -θη- started from 2d singular middles with a personal ending *_-thēs_.

Greek -α can have been taken over from the 1st singular. A theoretical consideration against setting up a PIE 2d singular perfect ending **-tA-e* is that the prosopic kernels of other personal endings (aside from the obscure 2d plural middle) contain only a single consonant: 1st sg. **A*, **m*, 2d sg. **s*, 3d sg. zero, **t*, 1st pl. **mé*, 2d pl. **é*, **té*, 3d pl. **(é)r*, **(é)n* (combining with the 3d sg. to form **(é)r-Ø* and **(é)n-t*).

Other examples are less well founded. I do not see any reason to derive σθένος 'strength' from the root **steA* 'stand'. σχίζω 'split' goes better with Germanic *skītan* 'cacare' (**sk̑eid-*, with the same dental as Greek) than with Germanic *skaidan*, *skaiþan* 'separate' (with a *t*-determinative).

4.1.2. Against Sturtevant's view are the well-known cases where Greek τ corresponds to Indo-Iranian *th* and where there is good evidence for a following laryngeal, cases which have been plausibly treated by de Saussure and Kuryłowicz as showing a specific Indo-Iranian development of **tH* to *th*. Sturtevant tried to explain these by inventing preforms for the Greek in which the laryngeal did not immediately follow the dental. Thus for the set Gk. πλατύς Skt. *pṛthú* 'broad', feminines Πλάταια and *pṛthivī́*, which reconstruct beautifully to **pḷtAú-* and **pḷtAwiA*, Sturtevant reconstructed an "IH" alternation of *pḷtHéu-* and *pḷtéHu-* (*IHL* 85). Such an alternation is hard for me to reconcile with anything I know about the ablaut of *u*-stem adjectives in Indo-European; I know of no evidence for ablaut in these adjectives of the elements preceding the suffix *-ew-/-u-*. Sturtevant's failure to say in which case forms he imagined that the alternant *pḷteHu-* occurred is symptomatic for the general baselessness of his views on aspiration by laryngeals in Greek.

4.1.3. Since the theory is so lacking in positive support, it is hardly necessary to go into other theories that have been suggested to account for the Greek aspirates in question without positing a special set of PIE voiceless aspirates. But I would briefly remark that Kuryłowicz's explanation of initial σφ- and σχ- (*Études indoeuropéennes* 51–4, *Apophonie* 378, following Siebs *KZ* 37.294–342) as resulting from prefixation of "*s*-movable" to roots beginning with "voiced" aspirates seems extremely attractive; and equations like Gk. πένθος 'sorrow' with Li. *kenčiù* 'I suffer' (**kentyō*) can reflect differing enlargements, **dh* in Greek and **t* in Baltic.

4.1.4. Kuryłowicz's explanation for the aspiration in the personal ending -σθα (*EI* 52, *Apophonie* 381) can possibly be improved on, however. Kuryłowicz thinks the aspiration started from roots ending in aspirates, where an ending **-ta* would have become *-θα by Bartholomae's Law – e.g., λέλογχθα 'thou hast obtained' (my example). But Greek otherwise does not generalize allomorphs arising by Bartholomae's Law (rather it generally suppresses them), and it would be an advantage to have a wider basis for the aspirated forms to start from than the roots ending in aspirates alone. The ending actually appears in Greek as -σθα, e.g., impf. ἔφησθα, plup. ᾔδησθα, opt. βάλοισθα, subj. ἐθέλῃσθα. It is generally supposed that the σ comes from reanalysis within Greek of οἶσθα and ἦσθα 'you were', where the roots ended in consonants, **d* and **s*, that would regularly combine with a following **t* to give *στ. But *st*-endings are fairly common outside Greek – cf. especially Toch. A *tākaṣt*, B *takāsta* 'thou wast'; Hitt. *pa-iš-ta* 'thou gavest'; Lat. *ōdistī*; Goth. *saisost*. Although the source of these *st*-forms is not clear, they are so widespread that I feel justified in suggesting that the preform of Greek -σθα is not **-ta* but **-sta*. οἶσθα and ἦσθα can just as well be for **woid-sta* and **ēs-sta* as for **woid-ta* and **ēs-ta*; and the postvocalic -σθα of a form like *δέδϝοισθα 'thou fearest' (such forms have to be posited to account for the post-vocalic -σθα outside the perfect, although in historical Greek all 2d singular active perfects except οἶσθα have the ending -ας) is even easier to derive from **-sta* than from **-ta*. Only the aspiration is analogic, and we do not have to assume within Greek the introduction of an unetymological σ by reanalysis of οἶσθα and ἦσθα.

Positing an ending **-sta* gives a broader basis for aspiration in the ending than is furnished by **-ta*. For it seems likely that all clusters of labial or velar stop plus **st* resulted in aspirated clusters in Greek; cf. Schwyzer 1.326, with examples like ἑφθός 'boiled' from **hepstós* (cf. pres. ἕψω), Northwest Gk. ἐχθός 'outside' from **ekstós*. Although **d-st* and **t-st* probably became plain στ, development of pre-Greek **th-st* to σθ seems assured by the isolated 2d pl. πέπασθε 'you suffered' (πέπονθα 'I suffered').[65] Hence the aspirate would have been regular not only in verbs like *λέλογχθα, *τέτροφθα 'you were nourished', *πέποισθα 'you trust' (1st sg. τέτροφα, πέποιθα), but also in forms like *λέλοιφθα 'you left', *ϝέϝορχθα 'you accomplished' (1st sg. λέλοιπα, (ϝ)έ(ϝ)οργα). The uniform aspirate of the velar and labial stems would have served as a model for extension of the -σθα of *πέποισθα, etc., to all dental stems; hence (ϝ)οἶσθα for *ϝοῖστα, etc. In turn, the uniform -σθα of dental stems led to replacement of -στα by -σθα after vowels and in ἦσθα. At this stage the alternation of -σθα and *-θα in the 2d sg. active perfect followed the same rules as that of -σθε, -σθω, -σθαι and -θε, -θω, -θαι in the middle perfects of historical Greek. But the replacement of -(σ)θα by -ας in most perfects led to the disappearance of the alternant -θα.

Hence, even if it should prove desirable to set up the PIE 2d sg. perfect ending as **-(s)tA-e*, the aspiration of Greek -σθα does not have to be explained as a reflex of the laryngeal.

4.2. In *BSL* 51.80-100 (1955), Marc Vey has proposed to derive Greek θάλασσα 'sea', χάλαζα 'hail', χαλάω 'slacken, loosen', and φάραγξ 'chasm', φάρυξ 'throat' from **dḷEghyH*, **gḷAd-yH*, **gḷO-s-ye/o-*, and **g*^{w}*ṛEng-*, **g*^{w}*ṛE-ug-*[66] respectively. He supposes that the development of PIE **ṚH* to Greek *aRa* went through a stage **HRH*, and that the first *H* of this sequence aspirated a preceding voiced stop. Vey shows commendable conscientiousness in setting up a set of auxiliary hypotheses (summarized p. 98) to explain the apparent countercases to this basic rule, but I remain skeptical. First, as I have already stated (§ 2.3.2), I suspect that Kuryłowicz is right in seeing *Rā* as the only straightforward phonologic development of **R̥H* in Greek, and all forms of the shape *aRa* as morphologic innovations. Secondly, four examples is a rather small basis for a sound law, especially when the law has to be buttressed by a very complicated structure of additional rules which do not themselves help to explain any further problems of Greek phonology (Vey's attempt to revive the connection of ἀγαθός with Germanic **gōdaz* [94–5] does not convince me). And of Vey's four examples, two seem to me semantically too little founded to be of use in proving a theory. Θάλασσα he explains as originally 'the long one', a feminine to a consonant stem adjective assumed to exist beside the familiar thematic **dl̥Hgho-* 'long'. The change of meaning to 'sea' he explains (99–100) by supposing that θάλασσα is an ellipsis for 'the long way' (θάλασσα ὁδός or θάλασσα κέλευθος), which he thinks would be a natural designation for the sea among people living on peninsulas, for whom the distance from one place to another would often be much shorter by land than by sea. To me this seems most unlikely; it certainly is in no sense compelling. Χαλάω he connects with the family of γελάω 'laugh' and γαλήνη 'calm' (including also γαλόῳ 'sisters-in-law'); the semantic development here seems possible, but by no means easy enough to make the etymology compelling. Connection of χάλαζα with Lat. *gelidus*, *glaciēs*, etc., and of φάραγξ and φάρυξ with βάραθρον 'pit', etc., would be semantically quite feasible; but these two cases do not seem to me enough to establish the theory.

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[65] The phonetic development of **nst* was στ – e.g., σύστασις from *σύνστασις, Schwyzer 1.336; but I see no reason why a *μέμοστα from **memonsta* 'thou art eager' would not be remodeled to *μέμονθα in much the same way that πεφάνθαι appears for *πεφάσθαι in the middle perfect. Although the phonetic outcome of **rst* and **lst* is unclear (Schwyzer 1.335–6), I think we can also posit an ending *-θα for verbs in ρ and λ, e.g. *ἐγρήγορθα 'thou art awake' (cf. mid. perf. ἐσπάρθαι, ἐστάλθαι), whether developed phonetically from **egrēgorsta* or analogic for *εγρήγοστα or *εγρήγορτα.

[66] I have replaced Vey's symbols for the laryngeals with the ones I am using generally in this report.

4.3. Greek provides no confirmation for the popular view that one or more of the laryngeals could voice neighboring obstruents. The root for 'drink', whose thematic reduplicated present Skt. *píbati*, OIr. *ibid*, etc., is the principal basis for the theory, appears in Greek as πω-, zero-grade πῑ-C, πι-V, not *βῑ-, *βι-.[67] Sturtevant's idea, *IHL* 87, that the smooth breathings of ἦαρ 'blood', εὖ 'well' and ἰάομαι 'heal' are evidence for voicing of a medial **s* by an adjacent laryngeal seems not to have been taken up by anyone else. The conditions under which Greek *h-* has developed from a medial **s* seem sufficiently unclear that the smooth breathings of these three words can hardly be of much value in determining the effect of laryngeals on PIE **s*. Ὄγδοϝος 'eighth', which might be invoked as evidence for voicing by a laryngeal, is not to be separated from ἕβδομος 'seventh', for which a laryngeal explanation is impossible. The parallel Slavic *sedmъ*, with voicing, but *osmъ*, without it, suggest strongly that in Greek the voicing originated in 'seventh' and spread from there to 'eighth' (so Schwyzer, 1.595).[68] Nor is it at all certain or even likely that Proto-Indo-

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[67] Cf. Manu Leumann, *Museum helveticum* 14.75–80, on the forms of this root in Greek, and especially 76–7 on the dubious value of the thematicized present **pibeti* as evidence for voicing by laryngeals.

[68] The voicing in 'seventh' has recently been discussed by Szemerényi, *Studies in . . . Numerals* 6–8. Szemerényi refuses to accept a PIE **septmos* > **sebdmos* because a cluster *ptm* would be at variance with Edgerton's extensions of Sievers' Law. Instead, he takes the voicing of ἕβδομος from '70', Proto-Greek *ἑβδμᾱκοντ- < *ἑπτμᾱκοντ- < **septm̥̄kont-* < **septm̥-dkont-*. This derivation of '70'

European 'eight' ended in a laryngeal, and if so, that the ordinal was originally **OeḱtH-o-*.[69]

4.4. Several authors have suggested that certain laryngeals (or combinations of laryngeals) in certain positions became consonants in Greek. In no case does it seem to me that adequate evidence has been presented for such a development, and only one of them, Martinet's view that **O* sometimes became *w*, seems at all likely to prove correct.

4.4.1. Following a suggestion of Sapir's, Sturtevant suggested that certain combinations of two laryngeals became *k*, and that this *k* appears in the Greek aorists and perfects of the type ἔδωκε, ἕστᾱκε and in noun suffixes containing a *k* (*Lg*. 16.273–84, *IHL* 87–9). Sturtevant's analysis of the noun suffixes is clearly unacceptable (it has been rejected by Martinet, *BSL* 51.56). It generally requires us to posit a series of two suffixes (one laryngeal, and then another) in place of the single *k*-suffix; and nothing is gained anywhere by this hyperanalysis.

His explanation of the Greek verbs with κ-extensions in aorist and perfect requires that the *k* originated in the 1st sg. perfect of roots ending in two of his four laryngeals, where the combination of root-final laryngeal with the ending *-*Ae* resulted in Indo-European *-*ka*. It is in my opinion practically impossible that the *k* could have spread from here to other persons of the perfect active singular; if anything, one would expect the *k* to have been reanalyzed and exploited as a mark of the 1st person singular. No Indo-European language has a 1st singular perfect in *-*ka* opposed to other persons without **k*; e.g. there is no Skt. **tasthā́ka* 'I stand' beside *tastháu* 'he stands', and yet Vedic Sanskrit preserves, and even expands, the type 1st sg. *cakára*, 3d sg. *cakā́ra* in which the short *a* of the 1st singular is an indirect consequence of the laryngeal in the ending. No language except Greek uses *k* as a perfect formant (as distinguished from the *k* of a form like Toch. B *tāka* 'was', which recurs in the subj. *tākaṃ* and the impv. *ptāka*). Both these facts seem to me extremely damaging to Sturtevant's case. Instead of assuming an unlikely extension of *k* in Greek and its complete disappearance everywhere else, I believe it is much better to stick to the view that one or two roots with final laryngeals had enlargements in *k* (e.g., **steA-k-* beside **steA-*) and that these enlarged forms came to be used in Greek in the perfect singular to the exclusion of the unenlarged forms. A plausible reason is that the unextended forms of the 1st and 3d persons would have fallen together when the stem vowels were contracted with the endings after the loss of intervocalic laryngeals: PIE **stestoA-Ae* and **stestoA-e* would both become Greek *ἕστω. Since Greek generally

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is very convincing. But it seems unlikely to me that '70' would have had a stronger influence on '7th' than '7' did; and I fail to perceive how OPruss. *septmas* and OLith. *sẽkmas* can be analogic for **septimas* from **septṃmos*.

[69] Cf. Szemerényi's discussion, op. cit. 88–9, 173–4. He seems clearly right in considering that Gaulish *oxtumeto-* has been influenced by the cardinal **oxtū* (10, 93), and that the Gothic hapax *ahtudin* is a misspelling (89), so that most of my evidence for a PIE **Oeḱtu-* (*EfL*^{1} 140–1) evaporates. (But for *ahtudin* the correct spelling may be not *ahtodin* but *ahtaudin*, which would agree equally well with OHG *ahtōdo*, OE *eahtoða*, and be easier to relate to the cardinal Germanic **axtau*.)

keeps 1st and 3d singular apart, the extended forms ἕστᾰκα and ἕστᾰκε came to be used exclusively. The 2d sg. ἕστᾰκας followed naturally (replacing what? *ἕστωστα?), and then came the other full-grade forms – pluperfect singular and subjunctive. With extension of *k* to all perfect active stems ending in vowels, we have reached the stage attested by Homeric Greek.

If it is difficult to explain the *k*-perfect by extension from a small group of 1st singulars, I believe it is impossible to explain the Greek *k*-aorists ἔθηκε, ἧκε, and ἔδωκε so. Despite Sturtevant, *IHL* 88 ftn. 48, there is no basis for supposing that these three aorists had somehow acquired perfect personal endings already in prehistoric times. For **dheE-* and **yeE-* the Latin cognates guarantee *k*- extensions, and spread of the type to **deO-* is easy to accept compared to the developments that Sturtevant's theory requires us to believe in.

4.4.2. In a series of recent articles (*BSL* 51.42–56, *Word* 12.1–7, *Proceedings of the Eighth International Congress of Linguists* 51–2) André Martinet has tried to make plausible a development of laryngeal before *s* to *k*. Without going deeply into the evidence outside Greek, I may say that I am not convinced. Martinet's principal material is the nominal *k*-formations of Indo-European, which he thinks started from a laryngeal suffix with consonant stem inflection, in which the laryngeal regularly became *k* before the *s* of the nominative singular. To render this hypothesis any improvement over the view that the *k*'s in question have always been *k*'s, it would seem necessary that Martinet be able to point to cases where *k* before *s* alternates with recognized laryngeal reflexes in other positions; e.g., one might expect that Av. *pantā-* 'path', oblique stem *paθ-*, which preserves so well the alternation of **ponteH-* and **pn̥tH-*, including the distinction between *t* from **t* and *θ* from **tH*, should have as nominative corresponding to Skt. *panthās* not *pantå* but **pantaxš*.

Martinet actually brings forward one example, as far as I see, the pair Lat. *senex* 'old man', *senātus* 'old men as a political unit'. But *senātus* belongs to a set of words in *-ātus* denoting groups of people (*comitātus*, *equitātus*, etc.) and offices (*magistrātus*, *cōnsulātus*, *prīncipātus*, etc.), and I see no reason to take *senātus* as an independent formation (or even the source of the others) rather than suppose that it is modeled on words like *comitātus* and *equitātus* which can be taken as ordinary *tu-* nouns to the verbs *comitārī* and *equitāre* (cf. Leumann-Hofmann 237); *sen-ēs* : *sen-ātus* = *comit-ēs* : *comit-ātus*.[70]

As for the nominative *senex*, I do not see that Martinet has improved on the explanation given by Brugmann, *Arch. f. lat. Lex.*, 15.1–9: *senex*, oblique stem *sen-*, has replaced the old *o*-stem adjective **seno-* under the influence of the antonym **yuwen-* 'young man' (while *uetus* took over the adjectival function of **seno-*); hence the oblique stem *sen-*. But the old nominative of *juven-* was **juvō* (cf. Skt. *yúvā*);

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[70] Cf. Cardona, *Lg.* 37.420 n. 16, for an answer to Watkins' defense of Martinet's view of *senātus*, *EFL*¹ 189–90. If *senātus* and *senāculum* contain an old stem **senā-*, it is that of a verb **senāre* (*-rī*) 'be a member of the council of elders', not a noun **sen-eA-* 'oldster'. Szemerényi's derivation of *senātus* from **seno-tāt-*, *II. Fachtagung f. idg. u. allg. Sprw.* 186-7 (1962), is too daring for my taste.

rather than use a corresponding **sō* for 'old man', the Romans here preferred an extended stem *senec-* of which other case forms occur in old Latin (e.g. nom. pl. *senicēs*, Plautus *Cistellaria* 374) and which is the basis for such 'popular' derivatives as *seneca* and *Seneciō*. In *AION* (Sez. ling.) 2.10 (1960), Szemerényi has pointed out that *senex* is probably syncopated from a thematic **senekos* or **senokos*, parallel to *iuuencus* (with its Celtic, Germanic, and Indic cognates), and that forms like *senicēs* are based on *senex*.

Examination of the nominative singular formation of nouns known to have laryngeal suffixes does not bring any support for Martinet's view. In addition to the Avestan *pantā̊* already mentioned, the suffixes involved are **-eA*, **-iA*, and the rare **-uH*. Most *-eA*-nouns, of course, had no ending in the nominative singular (Skt. *návā*, Gk. νέα, Lat. *noua*, etc.); but Martinet, *BSL* 51.45, points to the masculine substantives of the type OCS *vojevoda*, *sluga*, Lat. *agricola*, *scrība*, Gk. ἱππότης, and suggests (46–7) that in prehistoric times such masculines got an *s*-ending in order to differentiate them from feminines with the same suffix. But there is no evidence for any such PIE *s*-nominative in these stems; Slavic and Latin have no trace of it, and the ς of Gk. ἱππότης etc. is probably an internal Greek innovation beside which the older *s*-less nominative seems sufficiently attested in dialects (cf. Schwyzer 1.560). Only by supposing that words like Sl. *novakъ* 'novice, recruit' and Gk. νέαξ 'young man' represent transformations of an older **new-eA-s* 'der Junge' rather than more or less banal Slavic and Greek formations with the suffixes Slavic *-ako-* and Greek -ᾱκ- is Martinet able to construct any evidence for his postulated PIE *s*-nominative to *eA*-stems.

The *iA* and *uH*-stems are no more favorable to Martinet's view. Here PIE apparently had nominatives with *s* (Skt. *vṛkī́s*, *śvaśrū́s*, OIcel. *ylgr*) and without *s* (Skt. *devī́*, Goth. *mawi*). But Latin, contrary to Martinet's rules, has *-is*, *-us* in the words whose nominatives seem to have inherited *-s*: *neptis*, *socrus* (cf. Skt. *naptī́s*, *śvaśrū́s*), not **neptix*, **socrux*. Words with the suffix *-īx* corresponding to *iA*-stems elsewhere seem to have had endingless nominatives, e.g. *genetrīx*, corresponding to Skt. *jánitrī* and Gk. γενέτειρα, so that the view that they have an additional Italic *k*-suffix added to the PIE *iA* remains the most reasonable.

In general, Martinet seems to be trying to substitute a theory of phonetic change followed by a (to my mind) chaotic rearrangement of allomorphs for the straightforward view that PIE, like its daughter languages, had a series of secondary noun suffixes whose principal phoneme was a *k* (belonging evidently to the "popular" layer) and which was subject in the daughter languages to a normal amount of reevaluation, reshaping, and gains and losses in productivity.

Within Greek itself, I think Martinet's only example of a *k* alternating with another laryngeal reflex is the set (ὁ) κόραξ 'raven', (ἡ) κορώνη 'crow' (*BSL* 51.55, *Word* 12.5), which Martinet reconstructs as **kor^{o}O-s* and **kor-eO-neA*.[71] But, as Martinet himself says (*Word* 12.5), "It could well be argued that words of this type are of half-onomatopoeic nature, and cannot be trusted to have undergone a regular phonetic

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[71] I have changed the symbols for the laryngeals and expanded the reconstruction of κορώνη.

development." I would add that the reconstruction *kor^{o}O-s involves the highly suspect schwa secundum, and that, despite forms like OE *hrōc* 'rook', I see no reason not to segment κορ-ακ- and κορ-ωνᾱ, regarding both -ακ- and -ωνᾱ as suffixal. From such morphologically obscure formations we can hardly hope to deduce rules of PIE phonology.[72]

4.4.3. Martinet has also suggested that *O before syllabics could develop into *w*, and perhaps into *u* before nonsyllabics under special conditions (*Word* 9.253–67,[73] 12.1–7), and William Diver has suggested that *E might similarly develop into *y (*Word* 15.110–22). I think that a proper test of these views would consist of using them to build a new theory of the "long-diphthong" bases, in which preconsonantal *ē* and *ō* alternate with prevocalic *ēy* and *ōw* and zero-grade *ī* and *ū*, that would replace the one proposed by Wilhelm Schulze in *KZ* 27.420–7. So far laryngealists seem to have either tried to ignore the problems these bases raise when Schulze's *ēi and *ōu are rewritten *eEi and *eOu (most obviously: why didn't these sequences become *ey, *ow?) or else tried such unsatisfactory expedients as Benveniste's assumed alternation between root forms with and without enlargements in *-y-* and *-w-* (*Origines* 167–9). However Martinet and Diver have not applied themselves to a full scale treatment of the long-diphthong bases, and for the time being I remain undecided as to whether *w* and *y* can have a laryngeal origin or not (outside Anatolian, where Puhvel's suggestion, *Studies ... Whatmough* 235, that the *u* of Hitt. *daluki* 'long' continues a laryngeal is at least worth serious consideration).

One obvious difficulty that Martinet and Diver will have to face when they test their theories is the existence of long-diphthong bases of shapes other than *-ēi and *-ōu; thus the word for 'drink' has alternants *pī, *pō, and *pōy- (Skt. caus. *pāyáyati*), which Schulze would reconstruct as *pōi. In Martinet-Diver terms, the only solution I see here is a palatalized labio-velar laryngeal, *A^{wy}, which I doubt if many will have the courage to add to the list of PIE phonemes.

Meanwhile it seems worthwhile to point out that not all the examples of *w and *y which Martinet and Diver derive from laryngeals are convincing. This is particularly true of Diver, whose only Greek example of a *y* of laryngeal origin is the present suffix of denominative verbs, usually reconstructed *ye/yo (114–6). His evidence that the suffix is really *Ee/Eo is simply that denominatives in -έω, -όω, and -ύω regularly have a long vowel in non-presential forms, e.g. ἐφίλησα, φιλήσω, πεφίληκα to φιλέω 'love'. Assuming that the non-presential forms contain the suffix of the present stem, Diver interprets their lengthening as evidence for a laryngeal.

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[72] A second example might be Homeric πιδηέσσης (Λ 183), with the later πιδάω, vs. (πολυ-)πῖδαξ. Unfortunately there is no evidence to substantiate the necessary hypothesis of a masculine agent noun (πῖδαξ is feminine) to a verb *πῖδ- 'gush'. A more plausible case of *k* from laryngeal is Austin's Germanic *kw* from *Hw (see notes 1 and 58 above). But here the conditioning sound was *w*, not *s*, and if we take the Germanic sound shift into account, it appears that the laryngeal was occluded first as *g, which only later became *k*.

[73] Republished in French and with slight changes, *Économie des changements phonétiques* 212–34 (1955).

But I should think it fairly clear from denominatives to consonant stems like κηρύσσω 'proclaim', fut. κηρύξω, aor. ἐκήρυξα, perf. κεκήρυχα, that the non-present forms of denominatives in Greek are based directly on the stem of the underlying noun, and do not contain the formant of the present. Some other source than a laryngeal must be sought for the length in ἐφίλησα, etc. As far as I can see, an adequate model is the type τιμάω, ἐτίμᾱσα, in which the ᾱ of the non-present forms is simply the ᾱ of the underlying noun stem τιμᾱ́ (while the short α of the present in most Greek dialects is not very well accounted for; cf. Schwyzer 1.730); τιμάω : ἐτίμᾱσα = φιλέω : X. This is close to the view of Schwyzer, 1.739.

Of Martinet's examples for *w* from **O*, those which support his view that **eO* before vowels became **āw* (*Word* 9.258 ff. = *Économie* 218 ff.) seem particularly important. Most of the evidence for this development comes from Latin, and is strongly suspect of reflecting a Latin (or Italic) change of **ōw* to *āw* (cf. especially Szemerényi, *KZ* 70.51–76) rather than a general Indo-European outcome of prevocalic **eO*. Hence the quality of the Greek evidence becomes important. If it is good enough, Martinet's view of the Latin material can possibly be accepted as correct; if not, the interpretation of the Latin material remains doubtful.

My impression is that the Greek evidence for **āw* from **eO* is not of very high quality. Πρᾱνής 'pronus' and Doric πρᾶτος 'first' (*Word* 9.262, *Économie* 226) do not in my opinion reflect a lost **prāwos* from **preOos*, but rather exhibit the regular preconsonantal development of **pr̥O-*, the same syllable that appears before the suffix **-mo* in Lith. *pìrmas* and OE *forma* and before **-wo* in Skt. *pū́rva* and OCS *prъvъ* (cf. § 2.3.2). For Proto-Greek *ᾱ̆ϝέλιος 'sun' Martinet hesitates between **seOel-* and **seAwel-* (262–3). Although I do not pretend to be able to account for all the shapes under which this word appears in the different Indo-European languages, it seems to me hardly possible that forms like Av. gen. x^{v}*əng* and Go. *sunno* can be explained without supposing a genuine, non-laryngeal **w* in the PIE word. Martinet's view that σῶος 'safe' stands for **sāos* from **sāwos*, IE **tweO-os* (263), cannot now be maintained against Manu Leumann's masterly demonstration, ΜΝΗΜΗΣ ΧΑΡΙΝ 2.8–14, that the entire word family to which σῶος belongs has developed from the one adjective stem σάϝο-.

Martinet suggests (262) that Attic τραῦμα 'wound', related to the verb τιτρώσκω, has its vocalism from lost forms with **trāw-* from prevocalic **treO-*. But it is rather embarrassing to have to assume a model which has disappeared; Martinet does not offer an explanation for why the "regular" τρῶμα that appears in Ionic should have been remodeled in Attic after a prevocalic relative, while τιτρώσκω and all its other derivatives kept ω; and it is not easy to see how a prevocalic **trāw-* could have led to a preconsonantal *trau-*, especially since Martinet's analysis of πρᾶτος and πρᾱνής would lead us to expect *τρᾶμα here. I think we may fairly call the word unexplained by Martinet's hypothesis.[74]

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[74] R. A. Crossland, *Archivum linguisticum* 10.87–94 (1958), is similarly skeptical about Martinet's *w* from **O*, but goes too far in doubting an *o*-coloring laryngeal altogether. Cf. note 2 above.

4.4.4. In the 1960 publication of this survey I quixotically undertook to evaluate here the suggestions relating to Greek of H. B. Rosén, *Lingua* 6.354–73 (1957) and 7.367–86 (1958). It now seems enough to say that in my opinion none of Rosén's new suggestions seem at all likely to prove correct. Readers curious for more information to whom the 1960 edition of *Evidence for Laryngeals* is not available can consult *Lingua* 10.190–210 and 326–46 (1961).

EVIDENCE IN ITALIC

CALVERT WATKINS

I

The Italic group of languages is among those which preserve most distinctly the classical late Indo-European five vowel triangle with a correlation of length. In Italic we have precisely what has come to be almost the "canonical" treatment of laryngeals in combination with vowels: in terms of a somewhat algebraic concept of *H*, we may set up $H_xE > E_x$, $EH_x > \bar{E}_x$. The facts are too well known to warrant going into the detail.

There are however three specific developments in recent laryngeal theory which have considerable bearing on Italic, and which deserve examination in somewhat fuller detail. The first of these are the various reflexes of H_3 and to some extent H_2 which have been explored by A. Martinet in a series of articles in recent years.[1] The phonetic reflexes posited by Martinet are three: (1) the "exuding" of a /w/ by a labio-velar laryngeal A^w as in *strāuī*, *flāuī*, whence *amāuī*; (2) the "hardening" of a fricative into a stop /k/ before *s*, as in the nom. sg. *senex*, and in such formations as Lat. *-trīx* beside Skt. *-trī*; (3) the development of either *ō* (*octō*) or *ā* (*octāuus*), and in some cases short or long *ā̆* as in *senā-tus* beside *senex* < **senaks*.

I do not wish to recapitulate Martinet's arguments, nor all the forms with which he deals; the articles are, I am sure, well known to all those present. My own opinion is that Martinet's hypothesis is in general well-founded, and provides a relatively simple explanation for a rather impressive body of disparate data. It has furthermore shown itself a productive line of speculation for other scholars, and has tended to be confirmed by subsequent research: I mention Jaan Puhvel's work on the nasal presents (*Laryngeals and the Indo-European verb* [Berkeley and Los Angeles, 1960]), Werner Winter's interesting invocation of the *-k-* of Armenian *mukn* 'mouse', *jukn* 'fish',[2] and my own equation of Lat. *strāuit* with OIr. *sraí*(*th*) <**strāw-e*.[3] Martinet's position seems to me to have all the qualifications necessary for its acceptance as a viable working hypothesis. It is only to be expected that there are corrections to be made, or refinements; while there are probably cases of overextension or misapplication, these in themselves are not enough to invalidate it. For a reinterpretation of the process involved in the generalization of *-āx*, *-īx*, which permits the explanation of additional data not mentioned by Martinet, see the appendix to this chapter.

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[1] See *Word* 9.253 (1953); *Économie* 210; *BSL* 51.42 (1955); *Word* 12.1 (1956), as well as the more general statements in *Phonetica* 1.1 (1957) and his rapport in the *Proceedings of the VIIIth International Congress of Linguists* (Oslo, 1958).

[2] *Proc. VIII Int. Cong. Ling.* 60.

[3] *Ériu* 18.90–2 (1959).

I may add that certain of the objections raised to date against some or all of Martinet's position do not appear to me to be cogent. For example Cowgill's rejection of Martinet's explanation of the Latin suffix *-āx* (in his contribution to this conference), because of an assumed derivational process *fugā* + *-k-* > *fugāx*, is unlikely on morphological grounds. This is simply not the original type in the *-āx* adjectives. The formation is partially deverbative in sense, and comes to be that in form as well (e.g. *audāx*), but the original type was built formally on the old root noun, as can be seen from *capāx* (: *-ceps*), *ef-ficāx* < **fak-āx* (: *-fex*), *tagāx* (: long vowel root noun derivative *-tāgēs*), *sagāx* (: long vowel root noun derivative *sāgiō*).[4] In this case *fug-āx* must be put in relation with the root noun preserved in Gk. φύγα-δε.

Cowgill is likewise troubled by *senātus*, and would like to view it simply as "suffix *-ātus*". But what is the suffix *-ātus*? It is in all likelihood in origin a combination of the final *-ā* of *ā*-stem nouns with the suffix *-tu-*, by the familiar process of Suffixhäufung.[5] We may well ask, where are these *ā*-stem nouns, and I see no reason why *senātus*, which refers to what must in one form or another be an Indo-European institution – compare the Hittite *pankuš* and Greek γερουσία – should not contain an old word or stem **senā-*. It is certainly more likely that *peditātus* has its suffix from *senātus* than the other way around.[6] Similarly one must account for the very old word *senāculum*;[7] the formation is that of *tabernāculum* 'tent', itself an old word on the evidence of its specific religious acceptation,[8] and it is simplest to assume *tabernā-culum* (**-tlom*) = *senā-culum*, thus with independent attestation of the stem **senā-*.

Eric Hamp has suggested (*Word* 11.399 [1955]) that the Oscan and Umbrian *-f-* perfectum may result from a cluster $A^wA = \gamma^w x$ in the first person singular of the perfect (e.g. $*stroA^w\text{-}Ae$) falling together with Italic x^w < IE g^wh. This seems to me unlikely for several reasons. In the first place, if Italic had a labiovelar fricative x^w from IE g^wh and at the same time a "laryngeal" γ^w from H_3 (A^w), why would it not be organized simply into a "square" structure,

$$\begin{array}{cc} \mathrm{k^w} & \mathrm{x^w} \\ \mathrm{g^w} & \gamma^{\mathrm{w}} \end{array}$$

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[4] On such long-vowel formations as these, all built on a (lost) root noun, see chapter three of my *Indo-European origins of the Celtic verb*, I: *The sigmatic aorist* (Dublin, 1962).

[5] So the suffix *-ānus* in, e.g., *Mari-ānī* 'followers of Marius' is by origin the addition of *-no-* to *ā*-stem nouns, e.g., *Sullā-nī* 'followers of Sulla'.

[6] Leumann-Hofmann 237 take *senātus* in fact as one of the original stock with this suffix.

[7] An open place in the forum where the senate met in early Republican times; cf. Varro, Ling. Lat. 5.156.

[8] *Tabernaculum capere* 'choose a place for a tent outside the city, in which to observe the auspices', Cicero, de Div. *passim*.

That there is a chronological problem involved is shown likewise by the fact that medial $\text{-}x^{w}\text{-} > \text{-}w\text{-}$ with neither lengthening nor coloration (*niuem*, *uoueō*), whereas the loss of A^{w} leaves traces in length and vowel color as well as *-w-*. Finally, it has been my experience that in the analogical remaking of a verbal paradigm it is consistently the form of the 3 sg. which is imposed on the 1 sg. (and other persons), and not the other way around. One may compare the Sanskrit precative,[9] the Polish past tense and verb 'to be',[10] and the Old Irish *t*-preterite, and *s*-subjunctive,[11] and for that matter, Martinet's explanation of the Latin *-uī* perfectum, which requires that the locus of diffusion – Hamp's channel – be the 3 sg. in *-e*, not the 1 sg. in *-Ae*.

The third recent development in laryngeal theory with relevance to Italic is Kuryłowicz's theory of the morphological zero grade in *a*: that the regular phonological treatments $ERH + C > ERa + C$, $\underset{\circ}{R}H + V > aR + V$ are responsible for a treatment $\underset{\circ}{R}H + C > aRa + C$ alongside the "regular" $\underset{\circ}{R}H + C > R\bar{a} + C$.[12] In this we have the characteristic effacement of any distinction among laryngeals after resonant, as in Balto-Slavic; one might be tempted to wonder whether this is already dialectal Indo-European. This whole analysis of Kuryłowicz's goes a long way toward answering Martinet's statement (*Word* 9.263): "we stand in need of a dynamic theory of the IE weak grade . . ." As I stated in my review of Kuryłowicz's *Apophonie* (*Language* 34.381–398 [1958]), this must be recognized as a very useful tool in reconstruction.

It should be pointed out, however, that there are certain problems connected with Latin phonology which obscure the testimony of Latin in this connection: one is Latin syncope, of the type *ceruus* < **kera-wo-* < **kerH-wo-* (cf. Lith. *kárvė*, Russ. *koróva*, S.-Cr. *krȁva* 'cow' with acute). In the cases where both seṭ and aniṭ forms are attested in various languages, as in **ker-/kerH-* 'cut', it becomes impossible to say whether, e.g., *corium* reflects **korH-yo-*, or **kor-yo-* : Skt. *carman-* 'skin'. The Latin alterations of vocalic timbre in non-initial syllables provide a special problem as well.

II

The final feature which I would like to examine may be described as the morphological reflexes of laryngeals in the verbal system. The apparent integration of the laryngeals into the morphological system as the mark of a particular delimited form class is a phenomenon we can observe in the earliest stages of many Indo-European languages; doubtless the most notorious example is the morphophonemic situation reflected in the Sanskrit grammatical terms seṭ and aniṭ. There are three such phenomena in Latin to which I should like to call attention: (1) the *-u-* perfectum; (2)

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[9] 3 sg. *bhūyās* : 1 sg. *bhūyāsam* replacing *bhūyām*.

[10] 3 sg. *jest* 'is' : 1 sg. *jestem* 2 sg. *jesteś*; 3 sg. m. *miał* 'he had' : 1 sg. *miałem* 2 sg. *miałeś*.

[11] For the derivational history of all these verbal classes and paradigms in Celtic and other Indo-European languages, see chapter seven of the work referred to above (fn. 4).

[12] See *Apophonie* § 19 ff.

the nasal type *sternō*; and (3) the verbs from seṭ roots of the structure *TERH-*.

The origin of the first of these has been established by Martinet, in the first of his articles cited above: the *-u-* mark in the perfectum of derived verbs in *-ā-* and *-ī-* represents an analogical generalization of the *-w-* of the laryngeal A^w proper to a small number of monosyllabic roots of the type **stre*A^w-. (This explanation I find far more convincing than that recently offered by W. Krause, *Corolla Linguistica* 137–44.) It may be pointed out that the spread of such a mark from a small number of laryngeal bases to the most productive verbal category of the language finds an exact parallel in the preterite in **-as*(*s*)- of the Celtic weak verbs. This Celtic suffix is formally equatable with the Sanskrit *-iṣ-* aorist, and arose from a very limited number of aorists to athematic seṭ roots in Proto-Celtic. The great fortune of the Sanskrit *-iṣ-* and *-siṣ-* aorists in the Middle Indic verb affords an additional parallel.

The second morphological category to be considered are the "*-nā-*" verbs in Latin, the correspondents of the Sanskrit *punā́ti* type. Such are for example *cernō linō sinō spernō sternō -temnō tollō -cellō*, perhaps *pellō*. These verbs are all conjugated according to the third conjugation, and the exact nature of the development from the "*-nā-*" has not satisfactorily been explained. It seems to me that if we assume the generalization in Italic throughout the paradigm of the zero grade of the suffix, *-nă-* < *-nH-*, then the entire development can be accounted for by purely phonological transformations, namely the weakening of vowel timbre in non-initial syllable.[13] This assumption of the generalization of the zero grade in an inherited apophonic verbal paradigm is completely in accord with what we know of other verbal paradigms with original nasal infix in Italic; we must assume it for *iungō* beside *yunákti*, as well as for the *-nu-* type of *sternuō*. Outside the nasal class it recurs in e.g. 3 sg. *condit*, *crēdit*, which presuppose the generalization of the zero grade *dă-* to *dē-*, IE *dhē-*. Outside the verbal system as a whole the same treatment must be invoked for the nom. sg. *cor*, which presupposes the suppression of the Indo-European lengthened grade nom. sg. **kērd* which is attested in Indic, Greek, and Hittite, and secondarily in Baltic and Germanic. From the strictly comparative point of view it is significant that the Celtic verbs of the IE *-nā-* class all show only the zero grade form *-nă-*: cf. OIr. *-ben* 'strikes' (conjunct), which can only go back to **bi-na-t* with short *ă*. We may thus assume a regular phonetic development of an Italic paradigm as follows:

**li-n*(*H*)*-ō*[14]	*linō*
**li-na-si*	*linis*
**li-na-ti*	*linit*
**li-na-mos*	*linimus*
**li-na-tes*	*linitis*
**li-n*(*H*)*-onti*	*linunt*

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[13] Leumann-Hofmann suggest that the Latin inflexion in the third conjugation is due to vowel weakening of short *a* in the plural alone. But there is no evidence whatsoever for the assumption that Latin maintained an apophonic paradigm *-nā-*/*-na-* down to the period of vowel weakening, which is posterior to our earliest records of the language.

[14] Replacing **li-na-mi*; cf. OIr. *benaim* < **bi-na-mi*.

We have in effect here a conjugation with short *a* in the place of the thematic vowel *e/o*, a situation which as we shall see recurs in the third group of forms to be considered, the reflexes of athematic seṭ roots. I have treated elsewhere[15] certain aberrant reflexes of the nasal type in Celtic, in particular those cases where an assimilation of the type *-ln-* > *-ll-* (as in OIr. *do-airchella* 'encompasses' < **to-are-kʷelnat* : Gk. περι-τελλομένων) obscured the original relation to other verbs where the nasal is preserved; in all likelihood precisely the same situation occurred in Italic, in such forms with assimilation as *tollit* < **tollati* < **tolnati* < **tl̥-na-ti.*

The third group consists of five verbs, with certain characteristic features of paradigmatic unity. They are:

domāre		*domuī*	*domitus*
sonāre	*sonere*	*sonuī*	*sonitus*
tonāre	*tonere*	*tonuī*	*tonitus*
	uomere	*uomuī*	*uomitus*
	molere	*moluī*	*molitus*

In the two verbs *sonāre* and *tonāre* it is the third conjugation which is the older, as is clear especially for *sonere*, only in Ennius and Accius; *tonere* is attested by Varro. The parallelism of the perfectum forms, together with the trend in the latter two verbs, makes it likely that we have to deal in this entire group with a trend toward generalization of first conjugation forms, which has only partially been carried out. A proximate reconstruction of these forms, as generally accepted, is inf. **sona-se*, pf. 1 sg. **sona-wai*, pple. **sona-tos.*

In these five verbs it seems clear that we are faced with the prehistoric constitution of a morphological type *CoRă-*, with a unity of vowel color which cannot be explained by comparison alone. This generalization of the vowel *o* in the root syllable can best be accounted for by the assumption that these five verbs – and perhaps others which were subsequently lost – constituted a distinct formal class. Once this is admitted, then it becomes possible to explain the *o*-vowel of *domō* and *tonō* as analogous to that of *uomō*, *molō*, and *sonō*, where it results from separate, but entirely regular phonological transformations: *we-* > *wo-*; *ela-* > *ola-*; *swe-* > *so-*.

Now if we admit that the first step in the history of these verbs was the stage which we see in Skt. *ániti* or Gk. ἔραμαι, in other words the constitution of an athematic short *a* conjugation, then it becomes evident that these verbs underwent precisely the same phonetic development as I have posited for the *-nā-* verbs above; regular phonetic vowel weakening in non-initial syllable led to the replacement of the vowel *a* by *i*, with consequent elimination of the short *a* conjugation, and transfer to the thematic (from the Latin point of view third) conjugation.[16]

In general, seṭ roots appear in Latin in the first conjugation only in original monosyllabic roots, outside of composition: cf. *stā- nā- fā- flā- hiā-*, and contrast *con-dit crēdit* from zero grade forms. The only exceptions to this in Italic are the forms *arāre* and *calāre*. We should expect **ara-ti* > **arit*; but these two verbs should be put in relation with the preservation of the vocalism in *alacer*, *anas*, *calamitas*. The sequence *aRa* in Latin tended to resist weakening to *aRe/i*.[17] Hence when **womati* was weakened to *uomit*, **arat(i)* remained; but with the loss of the short *a* conjugation elsewhere, i.e., its conflation with the thematic type, the aberrant **arat(i)* was simply assimilated to the productive derivational type in *-ā-*: **arāt(i)* > *arat*. Exact parallels in Celtic to this development have been discussed in the article cited in note 15 above.

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[15] *For Roman Jakobson* 618–21 (The Hague, 1956).

[16] One may compare also the somewhat analogous process for Germanic which has been suggested in another context by G. Høst, *NTS* 17.441 ff. (1954).

The only question remaining to be accounted for is the partial generalization of first conjugation forms, e.g., in *domāre*. In these verbs as a whole we know that the athematic short-*a* conjugation is historically the older. The transfer to *-ā-* might have been motivated by the influence of the type *secāre uetāre crepāre*, where the *-ā-* is conceivably of unrelated origin. But I suspect that in our type with root structure *CoRă-* that the dominant influence was the denominatives from nouns of the τομή and partially τομός types, such as *forāre uorāre dolāre uolāre morārī*, with a universal root structure *CoRā-*.

APPENDIX

Mr. Cowgill's remarks (preliminary ed., p. 198) do not convince me. It is laudable to explain forms as much as possible on the basis of forms that occur; but *fuga* is the only attested *ā*-stem noun which has beside it an adjective in *-āx*, *fugāx*. No **capa*, **faca*, **taga*, **saga*, **sala* (*salāx*) occurs. On the other hand, if we are to take *capāx* as deverbative from *capiō*, with Cowgill, why does *tangō* form *tagāx*, not **tangāx*, or *sāgiō sagāx*, not **sāgāx*? I still maintain that these forms can only be explained from athematic verbal nouns **kap-*, **fak-*, **tag-*, **sag-*, **sal-*, **fug-*.

For Lat. *senex*, the suffix form would be **-eA-*, alternating with zero-grade **-A-* in the weak cases. The nominative would be marked by *-s*, and I see no reason why an archaic pattern nom. sg. **sen-eA-s*, gen. sg. **sen-A-es* could not have yielded **senaks*, **senas*, preserved in the totally isolated Latin *senex*, *senis*. This presupposes only the replacement of acc. sg. **-eA-m* by its apophonic counterpart **-A-m* (Lat. *senem*), and similarly in other strong cases.

On the other hand for the more productive suffix formations, the elimination of apophony in nominal paradigms in Latin is normal: stem *-tōr-*, never **-tor-*, *-tr-*. Hence it is reasonable to assume a subsequent generalization of the full grade suffix form **-eA-* throughout the paradigm: nom. sg. **-eA-s*, acc. sg. **-eA-m*, etc. This situation would generate the stem alternation *-ak-s/-ā-m*, as assumed by Martinet. Cowgill is justified in questioning the immediate levelling of *-ak-/-ā-* to *-āk-*, which Martinet suggested. But the process may be set forth in another way, which is more in accord with the attested forms and general history of the Latin language. We assume original, phonetically regular reflexes of *-eA-s*, *-eA-m*, after Martinet:

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[17] Compare Devoto, *Riv. di filol. class.* 54.518 (1926).

nom. sg. *-ak-s*
acc. sg. *-ā-m*

Such a pattern is an evident abnormality in the system, and as such, inherently unstable. The simplest way of ordering such a pattern would be the elimination of one of the variants in favor of the other. The result would be then one or both of the following patterns (the new analogical forms are bracketed):

a) [*-ā-s*]   b) *-ak-s*
-ā-m   [*-ak-m*]

In fact, we have evidence in archaic Latin that the first (a) was tried: nom. sg. *hosticapās*, *par(r)icīdās*. I see no justification whatsoever for assuming Greek influence on these forms in *-ās*, particularly in a legal term so profoundly rooted in Latin tradition as the latter (XII Tables). These attested Archaic Latin nominatives singular in *-ās* also show that Martinet's starting point **-eA-s* is not 'pure invention', pace Cowgill; likewise correct the latter's statement above (p. 177), that Latin shows no evidence for nom. sg. *-s* in such forms. Subsequently, however, the nom. sg. *-ā-s* was replaced by the more normal *-ā* (*parricīda*), and the formation fell together in everything but gender with the productive feminine *ā*-stems.

If we consider the second type (b), it appears that there is another possible source for the long vowel historically attested: the inherited lengthened grade of the nominative singular. The replacement of nom. sg. **-ak-s* by *-āk-s* would then conform to the inherited pattern of nominal inflexion. The subsequent generalization of the lengthened grade throughout the paradigm is paralleled in numerous Latin forms, both radical and suffixal: *uōx* → *uōcem*, **-tōr* (itself subsequently shortened) → *-tōrem*. The replacement of **-ax* by *-āx*, and subsequently **-acem* by *-ācem* after *-āx*, is thus directly in accord with the tendencies inherent in the language.

Cowgill's final objection, that there is a difficulty in comparing masculine agent nouns (in *-ā*) with trigeneric adjectives (in *-āx*) would not appear to be serious. A Latin original root noun is a masculine agent noun in, e.g., *iūdex*, *auceps*, while an equally original root noun is a trigeneric adjective in *dēses*. Contrast the masculine and feminine agent noun *obses*. One may note as well that Lat. *parricīda* is given as both masculine and feminine, and the suffix **-eA-* may well not originally have been differentiated in respect to gender.

The twofold analogical refection which I posit, of *-ak-s/-ām*, into either *-ā-s/-ā-m* or *-ak-s/-ak-m*, the latter developing to *-āk-s/-āk-em*, can be applied equally well to the history of Lat. *-trīx*. In this case as well, it permits the explanation of additional data. Starting with finals *-iA-s -iA-m*, we obtain first *-ik-s/-ī-m*. This is in turn refashioned into

a) *-ī-s* b) *-ik-s*
-ī-m *-ik-m*

just as in the previous case. The second type (b) undergoes the same apophonic transformations as *-ak-s*, ultimately appearing as *-īk-s/-īk-em* (Lat. *-trīx*, and isolated cases of *-īx*, e.g. *cornīx*, *ceruīx*). The first type (a) is preserved in Latin as well, in *neptis* and, mutatis mutandis, *socrus*: precisely the forms which were cited above (p. 177) in evidence against Martinet's hypothesis. The latter two forms correspond to Skt. *naptī́s*, *śvaśrū́s*, which is prima facie evidence for an original nominative singular with *-s*. Their ultimate transfer to the productive *-i-* and *u*-stem types is generally acknowledged, and we need only assume that the new nominative singular *-is*, analogical to acc. *-im* < **-īm*, replaced an earlier nom. **-īs* which was itself analogical to acc. **-īm*. We have only a repetition of the same process, a commonplace in the history of language.

I take this opportunity to answer certain objections to my explanation of the presents *domāre*, *sonāre/sonere*, *tonāre/tonere*, *molere*, *uomere*, which are raised by G. Cardona in his perspicuous review of the first edition of this work (*Lang*. 37.413–24 [1961]), and are evidently shared by H. M. Hoenigswald.

The phrase "constitution of a short *a*-conjugation" is I think justified as a descriptive term for the situation in Proto-Latin and its genesis. I posit the development, from two distinct sources, *nā*-presents and athematic seṭ presents, of a conjugational type characterized by a morpheme *-a-* (3 sg. pres. **-a-ti*). Where we have, e.g., **linati* (*linit*), **tollati* (*tollit*), **womati* (*uomit*), the fact that we have an exact etymon for the last (Skt. *vamiti*) is not strictly relevant to the descriptive situation in Proto-Latin. We would have a segmentation **wom-a-ti*, parallel to Skt. *vam-i-ti*, but which is in neither case the same as the inherited **wemH-ti*: whence the term "constitution".

Cardona does not feel that I am warranted in taking these five verbs as a small class, exhibiting a trend toward generalization of first conjugation forms. He suggests that one might further include *colere coluī* in this group. But the existence of *coluī* parallel to *moluī* is not significant, when we have *cultus*, not **colitus* like *molitus* etc. Cardona does not contest the suggestion that *domāre* and *tonere/tonāre* have *o* for *e* after the pattern of the other three, which have regularly *o* < *e*. But if they were not a "class", why should this analogical replacement have occurred? That the five verbs formed such a class, is admittedly a hypothesis. But it is by no means an unrealistic assumption that a trend toward the analogical spread of first conjugation forms in the infectum should be complete in one form (*domāre*), in process in two (*sonere/sonāre*, *tonere/tonāre*), and have not yet reached two (*molere*, *uomere*) by the time of the fixation of the literary tradition (*immolāre* is a denominative from *mola* (*salsa*), and not a replacement of an **immolere*). Compare the history of the replacement of Latin primary verbs by "frequentatives" of identical force, a process which extended from prehistoric times (e.g., *portāre*) through the historical period.

To Cardona's final objection, that nouns of the τομή/τόμος type were rare in Latin, I will say only that a few did exist, and more must have existed in prehistoric times, to account for the formation of the denominative verbs of the type *uorāre* which I listed. Given the productivity of the *ā*-verbs as a whole, five or six verbs of the structure *CoRā-* is surely enough to exert some pressure on the form of at least three of the five unmotivated verbs of the structure *CoRa-*.

[As in the case of the earlier chapter on Balto-Slavic, Mr. Watkins agreed to the preservation of the cover symbol *H* (as used in the preliminary edition), although he would now have preferred to write *ə̯* instead of *H*. – Ed.]

TOCHARIAN EVIDENCE

WERNER WINTER

1. It can be considered an established fact (cf. Krause-Thomas, *Tocharisches Elementarbuch* 1.53) that what is traditionally subsumed under the label of PIE *ə* is at least in part reflected by Tocharian[1] B /a/ (with allophones stressed *ā* and unstressed *a*) and Tocharian A /ā/ (alternating, under known conditions,[2] with /a/, /ə/, and zero).

Examples are:[3]

B *pācer*, A *pācar* 'father' : Gk. πατήρ, Skt. *pitár-*

B *tkācer*, A *ckācar* 'daughter' : Gk. θυγάτηρ, Skt. *duhitár-*

Because of a general loss of final vowels in polysyllabic forms in A, only B shows a reflex of PIE *ə* in this position:

B *tarya*, feminine of B *trai* 'three' : Gk. τρία

B *klyomña*, feminine of B *klyomo* 'noble' < **ḱlew-mn-yə*;[4] cf. Ved. *śró-mata-*

B *rtarya*, feminine of B *ratre* 'red' : Gk. ἐρυθρός

B *śtwāra*,[5] feminine of B *śtwer* 'four' : Gk. τέσσαρα, Skt. *catvā́ri*

We note that reflexes of PIE *ə* do not coalesce with preceding semivowels, nasals, or liquids; further examples are:

**yə* > B /ya/, A /yā/: acc. fem. sg. B *rtaryai*, A *rtäryāṃ* < **rudh-r-yə-m*, or, with laryngeals posited, < **Erudh-r-yA-m*

**wə* > B /wa/, A /wā/ > /u/: B *ostwa*, A *waṣtu*, plural of B *ost*, A *waṣt* 'house'; cf. Gk. ἄστυ, Myc. *wa-tu* '*city*'

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[1] The prolonged controversy about the proper designation of the "Tocharians" has received new momentum by the publication of a Leningrad text (Petrovskij Sl P/65B) by V. S. Vorob'ev-Desjatovskij in *Učenye zapiski Instituta vostokovedenija* 16.1958.305: however, the reading [Skt.] *tokharika*: [B] *k*^{u}*caññe iṣcake* is not certain; an inspection of the original (kindly permitted by the Institut narodnov Azii AN SSSR during my visit to Leningrad in October 1963) proved on alternative [B] *k*^{u}*ṭhaññe iṣcake* equally possible, which suggests an interpretation of *tokharika* as 'Saka of Khotan'. The native term for Kuchean appears to have been *k*^{u}*śiññe* (cf. *Uralic and Altaic Studies* 23. 239–242 [1963]).

[2] For material cf. Sieg-Siegling-Schulze, *Tocharische Grammatik*, pp. 42–43. /a/ is replaced by /ə/ and, in open syllable, zero before a number of suffixes if the preceding syllable contains an *a*, *ā*, *e*, or *o*.

[3] All Tocharian forms will be given in a conventional transliteration; a phonemic transcription is used only where it helps to avoid unnecessary complications in the statements made.

[4] As an alternative to **ḱlew-mn-yə*, a pre-form **ḱlewo*(*s*)-*mn-yə* may have to be considered to account for the vocalism of the first syllable; this uncertainty does not affect our immediate argument.

[5] For comments on *a*-umlaut in Tocharian see *IF* 67.1962.32–33.

**nə* > B /na/, A /nā/, etc.: B *ñemna*, plural of *ñem* 'name' (cf. A *poräṃ*, pl. of *por* 'fire'): Ved. *nā́mā*; B *aknātsa*, A *āknats* 'ignorant'.[6]

Reflexes of **rə* and **lə* can be determined on the basis of some considerations of morphology: As pointed out *IF* 67.1962.29, old *-u-* stem of an adjective is replaced fairly often by a *-re-* stem in B and an *-r-* stem in A. *-u-* stem occurred with a zero grade of the root, though analogical transfer of full grade did happen occasionally (cf. Hj. Frisk, *Griechisches etymologisches Wörterbuch* 1.623 ad ἡδύς and 1.593 ad εὐρύς). Zero grade is clearly reflected in B *pärkare* 'long' : Arm. *barjr* 'high' and B *tapre* 'high' : Lith. *dubùs* 'deep' (cf. Krause-Thomas, *Tocharisches Elementarbuch* 1.52); we therefore can feel justified in claiming B /ra/, A /rā/ and B /la/ as reflexes of **rə* and **lə*, respectively, in the adjectives B *prākre*, A *prākär* 'firm' and B *lāre* 'dear', although for the first no obvious etymology can be suggested (the equation found in A. J. Van Windekens, *Lexique étymologique des dialectes tokhariens*, 100, is semantically unsatisfactory and phonologically unacceptable). For *lāre*, the following alignment may be proposed: M. Vasmer, *Russisches etymologisches Wörterbuch* 2.5, connects Russ. *ladyj* 'dear', *lada* 'spouse' with *lad* 'agreement' as found in Russian and several other Slavic languages; he is skeptical about a connection with Lyc. *lada* 'wife', apparently underestimating the ties of Lycian with other Indo-European languages, as he keeps *lada* in a context with rather different words of clearly non-Indo-European origin. Slavic *lad-* may be from **lād(h)-* or **lōd(h)-*, with **lōd(h)os* being the most probable source for the abstract noun *lad*; B *lāre* cannot be from **lədh-*, but only from **ləd-* followed by *-re* replacing **-u-*: the development **-dr-* > *-r-* has an exact parallel in B *swāre* 'sweet'[7] (this form, by the way, may contain **swə-* rather than **swā-* as found in Gk. ἡδύς, Skt. *svādú-*, Lat. *suāuis*). In view of these findings, we posit PIE *leXd-*, with no decision possible as to *a*-coloring or *o*-coloring laryngeal. The meaning to be postulated for this form should be approximately 'agreement, bond', and it does not seem impossible to maintain the connection with Lyc. *lada* (for a discussion of isoglosses between Tocharian and Slavic, Tocharian and Hittite, Slavic and Hittite cf. W. Porzig, *Die Gliederung des indogermanischen Sprachgebiets*, 183, 188f.). In its use, B *lāre* resembles Gk. φίλος and Skt. *priyá-*: that both a legal and an emotional relationship is expressed by these two terms is amply demonstrated in M. Scheller's monograph *Vedisch* priyá- *und die Wortsippe* frei, freien, Freund (Göttingen, 1959), and we can therefore feel free to claim that semantically an alignment of Slav. *lad* with Russ. *ladyj* and B *lāre* appears unobjectionable.

1.1. The fact that a reflex of a Proto-Indo-European laryngeal is preserved as a separate phonological unit next to the reflex of a semivowel is of rather great interest. As is well known, the zero grade of both **eXw* and **ewX* is to be reconstructed as **ū* from the evidence of other Indo-European languages; since one of the distinctive properties of a laryngeal is that it lengthened a preceding vowel, it is reasonable to assume that **ū* resulted directly from an earlier sequence **uX*. This common-sense conclusion can now be confirmed by Tocharian evidence:

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[6] A derivation from PIE *-ǵnō-* remains of course a possibility at this point.

[7] The interpretation given by Van Windekens, *Lexique étymologique* 118, for B *swāre*, A *swār* is not acceptable.

Beside Gk. πῦρ 'fire' we find B *pūwar*, plural *pwāra*, 'fire' that can only be derived from PIE *pwər* or, with laryngeal introduced, PIE *pwXr*.

Lat. *sūs*, Gk. ὗς, etc. are matched by B *suwo* 'pig' which, with the additional information provided by the adjective *swāññe* (*swāṃññe* FP 1b3, *swāñana* FS a3), can be reconstructed as **suXōn/*swXn-*.

B *pärwāne*, A *pärwāṃ* 'eyebrows', both dual forms, point back to **bhrwX-*; *pärwā-* is the reflex of **bhrwX-* plus dual ending **-e* (cf. *Lg*. 38.1962.123).

B *śaumo*, plural *śāmna*, 'person' (cf. A *śom* 'lad') seems to require a reconstruction **g^w^yXw-mōn/-mn-*[8] (for some further forms with this suffix, cf. Krause-Thomas, p. 153). The loss of *-w-* after *-a-* in position before tautosyllabic consonant recurs in such forms as the plural of past participles in *-āCau*, *-āCaṣ*.

The Tocharian data appear to indicate clearly that the development of zero grade *ū* (and *ī*) went through an intermediate stage **uX* (**iX*) even in forms where the full grades showed reflex of laryngeal in the position preceding the semivowel (note Hitt. *pahhur* 'fire', OHG *brāwa* 'brow'); in other words, we have to assume that the regular sequence **Xw* (**Xy*) was metathesized to **wX* (**yX*). Metathesis occurred only when no vowel preceded the laryngeal, when the laryngeal did not stand in initial position (cf. Gk. αἰθήρ 'clear sky' : Gk. ἰθαρός 'clear, bright'; but note Skt. *īdhríya-* 'pertaining to the clear sky'), and when the semivowel was at least originally followed by a consonant (it seems impossible to derive forms like Skt. *dháyati* 'sucks' from **dhiX-* as found in Skt. *dhītá-*).

1.2. In Tocharian, we find side-by-side reflexes of metathesized and unmetathesized forms in the words for 'fire'. As pointed out before, B *pūwar* derives from **pwXr* and is, therefore, to be directly compared with Gk. πῦρ, Arm. *hur* (a reconstruction **pwōr* as suggested as an alternative in Walde-Pokorny 2.14 has to be excluded; cf. *Lg*. 31.1955.8), Umbr. *pir*, OIcel. *fúrr*. A *por*, on the other hand, whose proper match in B would be **paur*, is to be equated with Hitt. *pahhur*.[9] Full grade, though with the *-n* suffix of the oblique cases, is also found in Goth. *fon*, reflecting, in Brugmannian terms, either **pā(w)n* or **pō(w)n*; such an analysis is suggested, though not without grave doubts, by H. Hirt, *Indogermanische Grammatik* 2.71. It seems reasonable to posit an original paradigm **péXwr* (with *-e-* grade as in other *-r/n-* stem nominative-accusatives: Hitt. *eshar* 'blood', Lat. *iecur* 'liver', Lat. *uēr* 'spring', Gk. ἄλειφαρ 'ointment', etc.), genitive **pXwnós* > **pwXnós* (or possibly **-és*?), locative **pXwéni*. Goth. *funins* (or *fūnins*?) shows a blending of the two oblique stems. OHG *fuir* resulted from generalization of the locative stem and of the nominative-accusative marker *-r*. The later form OHG *fiur* may have developed because of a replacement of the unique sequence [uy] (graphic Late OHG *ui* is [ü]) by the common diphthong [iw] (graphic *iu*), after the syllable boundary indicated by the spelling *uugir* in Muspilli 59 had been lost[10]; it seems unnecessary to posit a Proto-Indo-European nominative-accusative form **pewōr* (Chr. Bartholomae, *PBB* 41.1916.272; Walde-Pokorny 2.14) essentially just to account for the Old High German, Old Saxon and Old Frisian forms, though of course the development of such form **pewōr* 'fire' in analogy to the word for 'water' would remain a possibility.[11]

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[8] A reconstruction with full grade of the base, **g^w^yeXw-mōn-/-mn-*, has to be admitted as an alternative possibility.

[9] Note the brief comment in Krause-Thomas 56 (note 4).

1.2.1. The present-stem forms of the Tocharian B verb for 'rain' contain the sequence -*wa*- matching the -*ū*- of Gk. ὕει: 3rd pl. ind. *sūwaṃ*, ptc. med. *swāmane*; for more forms, cf. W. Krause, *Westtocharische Grammatik* 1.299. The forms of the preterit-subjunctive stem contain an element -*s*- after *swā*- (cf. 3rd sg. pret. act. *swāsa*) that recurs in preterit-subjunctive forms of Tocharian A (cf. 3rd pl. pret. act. *svāsar*). This -*s*- is also found in the verbal abstract B *swese*, A *swase* 'rain' (about these forms, cf. *JAOS* 81.1961.274–276). The nonpresentic forms of both A and B could readily be explained as denominative formations of a very common type, but that would leave the -*s*- of the noun unaccounted for. On the other hand, it would be possible to consider B *swese*, A *swase* as deverbative nouns based on the stem *swāsa*-; in this case, B *swese* could reflect **swōso*- rather than **swoso*-; A *swase* also could reflect **ō* vocalism of the root.[12] As an -*s*- following -*a*- has its parallels at least in some other B forms (see below 3.1), the second alternative will be preferred; it goes without saying that this decision deprives us of a chance to project a full grade **sweX*- into Proto-Indo-European: as seen before, the zero grade **swX*- may well correspond to full-grade PIE **seXw*-. Before we turn to this question, a few comments are called for concerning the present-stem forms of A.

Attested are: 3rd pl. pres. act. *swiñc*; ptc. med. *sūmāṃ*; 3rd pl. ipf. *sawr*- and *svawrä* (cf. Sieg-Siegling-Schulze, *Tocharische Grammatik*, p. 478). Contrary to what was proposed *Lg*. 26.1950.369, the last of these forms must be considered a scribal error. What is left, are clearly all forms without -*ā*- following -*w*-; *sawr*- reflects **sowr̥*( ) or **sōwr̥*( ); *swiñc* represents **swn̥ti*. In view of the preterit-subjunctive forms, one will be somewhat reluctant to assume survival of an aniṭ root in Tocharian A; rather one would prefer an explanation postulating loss of a laryngeal reflex within this language. Such an explanation seems available: In a form **swXnti*,[13] the laryngeal need not become vocalized; the resulting form **suwn̥ti* could easily be reanalyzed as containing **su*- and not **swX*- as its stem, and this **su*- could be introduced into the participle of the mediopassive. The old preterit (now imperfect) form *sawr*- could either have been formed on the basis of this secondary **su*-, in which case it would reflect **sow-*; or, if derived from **sōw-*, it could be an inherited form, but only if the full grade of the root was **seXw-* and not **sewX-*. Tocharian does not provide sufficient data to decide this question; we shall therefore turn to other languages.

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[10] A similar explanation may be given for the situation found in Old Saxon. (But note Chr. Bartholomae, *PBB* 41.1916.290).

[11] The question whether *-*ōr* is to be considered an old form cannot be discussed here.

[12] In addition, B *swese*, A *swase* may be interpreted as back-formations; this possibility is investigated in greater detail in section 3.1.

[13] A *swiñc* cannot be derived from **swXenti*, which should have yielded A **swāñc*. A third-person plural ending *-*n̥ti* is also required by such forms as Arm. *en*, Hitt. *asanzi* 'they are'.

Hittite *sehur* 'urine' has been connected with Lat. *sēmen, sēuī* (E. H. Sturtevant, *Lg.* 12.1936.182–185 and *Indo-Hittite laryngeals* 47, 65; a different suggestion in W. Petersen, *JAOS* 59.1939.187, and J. Friedrich, *Hethitisches Wörterbuch* 189). Sturtevant further combines Hitt. *sehur* with OIcel. *saurr* 'male semen, impurity, filth', OIcel. *súrr* 'sour, unpleasant', OCS *syrъ* 'moist, raw'. The connection of the Hittite and Old Icelandic forms is accepted by W. P. Lehmann, *Proto-Indo-European phonology* 26, and J. Puhvel (this volume, p. 89); it is not quite clear whether they also subscribe to Sturtevant's identification of Hitt. *seh-* with Lat. *sē-*. Semantically this connection is more than suspect; apparently Sturtevant was too much impressed with the gloss 'feuchte Erde, männlicher Same, Unreinheit' given for OIcel. *saurr* in Walde-Pokorny 2.513;[14] the meaning 'semen' seems to be very rare – Walde-Pokorny 2.469 gives only 'feuchte Erde, Kot', and J. de Vries, *Altnordisches etymologisches Wörterbuch* 464, does not mention the meaning 'Same' at all. There does not seem to be sufficient reason to retain a connection between the Latin group of words and the other items cited; on the other hand, it seems proper to consider the Hittite, Slavic and Germanic forms as related. The Slavic (and Germanic) adjective could be taken as an adjective derived from an *-r*-stem noun in the zero grade (**swXr-* < **sXwr-*); the Hittite noun would represent the *e*-grade of this form, just as Hitt. *pahhur* represented the *e*-grade of **peXwr-/*pwXr-* < **pXwr-*. It seems impossible to derive OIcel. *saurr* directly from an old full-grade form; rather one will have to consider it a later formation on the basis of the zero grade with metathesis, but details remain in doubt.

From Hitt. *sehur* and Slavic *syrъ* we extract a meaning approximation 'moistness'[15] for the abstract **seXw-r*. This agrees well with the meaning 'rain' for the verbal base **swX-* in Gk. ὕει, Toch. B *sūwaṃ*; for our present purposes we need not decide which further extensions of Walde-Pokorny's root '1. *seu-*' are to be included here.

1.2.2. At this point, we may want to consider briefly two other Hittite forms containing the sequence *ehur*.

The first of these is Hitt. *mehur*, glossed by Sturtevant (*Indo-Hittite laryngeals* 47) 'time, point of time, occasion', by Friedrich (*Hethitisches Wörterbuch* 139) simply 'Zeit'. Sturtevant compares the Hittite term with such forms as Skt. *mātra-* 'measure', Goth. *mēl* 'χρόνος, ὥρα', OHG *māl* 'point of time'; Lehmann (*PIEP* 24, 26, 93) accepts this view; Puhvel (this volume, p. 89) calls Hitt. *mehur* : Goth. *mēl* a "truly significant word etymology".

Sturtevant and his followers disregard the fact that some apparently related time expressions in other Indo-European languages show a *-t-* extension of the root (Alb.

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[14] It is only in this indirect way that E. H. Sturtevant 'mistranslated' OIcel. *saurr* as claimed by G. M. Messing, *Harvard Studies in Classical Philology* 56–57.1947.220.

[15] Cf. Messing *l.c.*

mot 'year, weather', OPruss. *mettan* 'year', Latv. *mets* 'period of time', Lith. *mẽtas* 'year, time' [the Baltic forms with secondary vocalism]; cf. Walde-Pokorny 2.237), and that therefore a derivation of the Germanic forms from **mētlom* as proposed (with different conclusions) by F. Detter, *ZfdA* 42.1898.57 cannot easily be dismissed. In such a situation, the only material that could be called related would be the bare root, if indeed Hitt. *-eh-* did correspond to PIE *-ē-*, a problem still to be discussed. However, it would seem preferable, in the light of our analysis of Hitt. *pahhur* and *sehur* to consider Hitt. *mehur* as an *-r* derivative from a stem **meXw-*; if that is correct, very little remains that would point to a connection of *mehur* with Goth. *mēl*, etc. It seems hazardous to want to propose an alternative analysis of a term essentially as abstract as a word for 'time'; could it be that Hitt. *mehur* has something to do with the base represented by Lat. *moueō* 'move' (cf. Walde-Pokorny 2.252–253), thus corresponding functionally to Lat. *mōmentum*? But how is one to assess Hitt. *mūtāi-* 'remove' (Friedrich 145)?

Sturtevant further extracts a form *ehur* 'ear' from *ehuratis* 'ear-stopper' (Friedrich 40: 'Pfropf [aus Wolle, im Ohr]'), *ehuradāi-* 'stop (one's) ears' (Friedrich: 'verstopfen'). Lehmann (*PIEP* 26) accepts Sturtevant's identification, pointing out, though, F. Sommer's rejection (*Hethiter und Hethitisch* 43) of Sturtevant's comparing Hitt. *ehur-* with Gk. οὖς.

Sturtevant's etymology faces considerable difficulties: All other Indo-European forms for 'ear' that could be claimed as related are based on *-s-* stems, not on *-r-* stems. All potentially related Indo-European forms that can be analyzed with some assurance contain *a-* or *o*-vocalism; if Hitt. *eh* is to be equated with PIE *ē*, Hitt. *ehur-* would be completely isolated in its ablaut grade. Finally, a Hittite word for 'ear' is attested as *istamana-* or *istamina-* (Friedrich 90).

The last objection clearly is the least weighty: If an innovation had been introduced in the Hittite vocabulary (for a rather unconvincing suggestion concerning an etymology for *istamana-* see Sturtevant, *A comparative grammar of the Hittite language*[1] 93), the old term could of course have been preserved in a "verbaute Bildung". The first objection is more serious; to find Hittite in such isolation is obviously not encouraging. On the other hand, in view of the frequency of *-r/n-* formations in Hittite one could claim that it would seem possible that an *-s* extension was replaced by an *-r*. Much, therefore, depends on the validity of the second point.

What can really be asserted about Hitt. *ehu*? From a comparison with Hitt. *pahhur* we see that it was in contrast with *-ahhu-* in words of otherwise parallel structure. If we assume that *-ahhu-* reflects **-eAw-*, we can deduce that *-ehu-* does not contain the reflex of an *a*-coloring laryngeal. However, can we be sure that *-h-* here represents neutral ("*e*-coloring") laryngeal, as Puhvel (this volume, p. 89) emphatically states?

Sturtevant identifies the laryngeal in Hitt. *sehur*, *mehur*, *ehur* as "γ". Lehmann, who essentially adopts Sturtevant's system, points out (*PIEP* 93): "The effect of a fourth laryngeal on contiguous vowels is disputed. Some proponents of the laryngeal theory have assumed that this laryngeal, /γ/, too, changed the timbre of neighboring vowels, so that [γe] became [γo], [eγ] became [ō]. Others, e.g. Sturtevant, have assumed that /γ/ did not change the color of a neighboring /e/ or /ₑ/. Sturtevant must therefore assume that many forms of the root *dō-*, from /deγ-/ 'give', e.g. Lat. *dōnum*, Gk. δίδωμι, have *o*-vowels by analogy, and that the expected vowel is found in Lat. 2d sg. pres. *dās*." Lehmann goes on to point out some of the difficulties in the assumption of an analogical transfer of *o*-vocalism and continues: "Indo-Europeanists who hold that /γ/ changed neighboring vowels from *e* to *o*, on the other hand, must explain /γ/ found contiguous with *e* in words like Skt. *mā́ti* 'measures', Hitt. *me-hur* 'occasion', and cognates."

We have seen above that we really have to be concerned only with the absence of *o*-coloring in Hittite; Goth. *mēl*, etc., need not be considered. Sturtevant's examples for γ in position next to *e* are: *ehuratis* 'ear-stopper', *mehur* 'time', *sehur* 'urine', *wehzi* 'he turns, falls', *pehutezzi* 'he leads away', *hekur* 'summit, peak, stronghold', *hinkanzi* 'they surrender.'[16] In the last example, one cannot be sure whether to interpret initial *hi-* as [hi-] or [he-]; Sturtevant prefers the second solution, Friedrich, the first. In all other cases but *weh-* and *hekur* we note that *-h-* is found preceding a [w] or [u]; in *weh-* a [w] occurs in the same syllable with *h*; in *hekur*, a labiovelar forms the onset of the following syllable (unless *ku* is to be taken as reflecting velar plus **u*). We draw the conclusion that in the neighborhood of *u*/*w* or labiovelar an original **e* was either not rounded or, having been rounded, became secondarily unrounded again. In the first case, we would assume that the *o*-coloring component of the laryngeal labeled "γ" by Sturtevant was lost by dissimilation; in the second, that the laryngeal itself need not have been affected, but that the regular *o*-color of the adjacent vowel[17] was lost. The second assumption seems to be preferable. It permits us to consider the vocalism of Hitt. *sehur*, etc., as paralleled by that found in Hitt. *nekuz* 'evening' (: Lat. *nox*) and Hitt. *nekumanza* 'naked' (: Goth. *naqaþs*): all Indo-European correspondences to Hitt. *nekuz*[18] and *nekumanza* have *o*-vocalism of the root; the assumption that *-e-* in these Hittite forms was due to dissimilation removes them from a state of complete isolation in the Indo-European system. This dissimilation would have to be ascribed to a time prior to the convergence of *a*- and *o*-colored vowels in Hittite; it is further to be noted that **o* ablauting with **e* apparently had a reflex not subject to dissimilation – cf. *sakki* 'he sees', *sekkweni* 'we see', if to be compared directly with Goth. *saƕ*, *sēƕum* (but note E. Benveniste, *BSL* 33.1932.140–141).

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[16] If Hitt. *heus* 'rain' is a word of Indo-European origin, it should be added here; its inclusion does not seriously affect the argument to follow.

[17] This argument clearly implies the assumption that the *a*-coloring of the reflex of PIE *o* in attested Hittite represents a later development. The whole problem deserves further attention, particularly in view of the possibility that rounded-vowel reflexes of **O* have to be recognized at least in certain environments; it seems that a form like Hitt. *tummeni* 'we take' offers even more powerful evidence to this effect than the examples adduced by J. Puhvel.

[18] Except for OCS *netopyrь* 'bat', the etymology of which remains, however, highly doubtful (cf. Vasmer 2.216).

The interpretation offered here for the Hittite sequences *-eh-* and *-he-* allows us to view some forms with a change in vocalism as containing a reflex of the same Proto-Indo-European laryngeal: If Hitt. *hasdwir* does indeed mean 'twigs', it may well be equated with Gk. ὄζος, Goth. *asts*, Arm. *ost*, except, of course, for the suffix. It also becomes possible to recognize full-grade vocalism in Hitt. *pāsi* 'er nimmt einen Schluck' (< **poOs-i*); except in some forms of *weh-*, probably analogical in origin, there seems to be no indication that **O* survived in position between vowel and consonant.

If our assumptions are correct, we can retranscribe the root found in Hitt. *sehur* as **seOw-*; that of *ehur* (if we are satisfied with an interpretation of this form as 'ear') as **EeOw-*; and *hekur* we can combine as **Oeg*^{w}*r* with Skt. *ágra-* 'point.'

1.2.3. Turning to Tocharian again, we note that **O* is reflected in all forms that allow an identification by B /a/ (A /ā/, etc.). This applies to B *sūwaṃ* 'it rains' : Hitt. *sehur*, etc., as it does to B *śaumo* 'person' where Greek forms like ἐβίων, ζώω, βίοτος support the identification of the laryngeal as **O*. The *a*-coloring laryngeal, **A*, and the *o*-coloring one, **O*, are thus both represented by B /a/, A /ā/, etc. (for **A* cf. B *pācer*, A *pācar* and other examples in the beginning of this paper).

1.3. In the first version of this paper (*Preliminary edition* 175–176) I proposed to use information from Tocharian about the position of **A* and **O* for an explanation of seemingly contradictory results of the Germanic Verschärfung. At that time I was unaware of the fact that the merger of the reflexes of **wX* and **Xw* in interconsonantal position required the assumption of a metathesis of **Xw* to **wX*. Obviously the evidence obtainable from forms like *swāñe* or *pärwāne* in B can now no longer be used to establish a sequence **wX* for all forms of the Proto-Indo-European roots involved; for any deliberations about the shape of the full grade we must rather continue to rely on the combined evidence of all Indo-European languages.

In a few instances, however, the Tocharian material may prove to be quite helpful. In B *śaumo*, plural *śāmna*, 'person', for instance, we have clear evidence for the sequence **Ow*, no matter whether we identify the root vocalism as **g*^{w}*yOw-* or **g*^{w}*yeOw-* (full grade is likely for the abstract B *śaul*, A *śol* 'life' in view of B *camel*, A *cmol* 'birth'); this permits us to reject W. M. Austin's reconstruction of the extended theme underlying Skt. *jīvá-*, etc., **gweHy-w-*, and to accept instead W. P. Lehmann's **g*^{w}*y-eX-w-* (*PIEP* 50). In turn, this means that we can use the Tocharian forms in support of Lehmann's assumptions concerning the origin of Gmc. *k*(*k*) (*PIEP* 49–52 and this volume pp. 216): the sequence **Ow* can be considered established for the preform of OE *cwic*, etc.

1.3.1. It may be useful to discuss here some details of Lehmann's materials (Austin's presentation is severely deficient because of internal inconsistencies and ad-hoc assumptions).

Lehmann reaches the conclusion that the difference between PGmc. *g* and PGmc. *k*(*k*) as reflexes of PIE *w* was due to the nature of the adjacent laryngeal (*PIEP* 52). In view of the rather haphazard distribution of *g* throughout the Germanic dialects, its sometimes demonstrably recent origin, and its occurrence in forms for which all available evidence indicates that they did not derive from forms with a laryngeal (note in particular OS *nigun* 'nine', etc.), it seems best to discard the assumption that PGmc. *g* reflects a laryngeal; rather does it seem to develop from any intervocalic **w* adjacent to *u*, and it may well be viewed as resulting from a strengthening of a syllable boundary where otherwise a diphthong would have developed. Gmc. *g* is then taken as a special development of **w*, which in turn of course may derive from laryngeal in the environment **uX* plus vowel.

This leaves us with Gmc. *k*(*k*) and NGerm. *ggw*, etc., to account for. We have seen above that Tocharian evidence supports a derivation of Gmc. *k*(*k*) from **Xw* in intervocalic position. Our findings about metathesis of **XR* to **RX* (this formulation is of course the expected generalization of the statement about **Xw* and **Xy* in 1.1) enable us to understand fully the relationship between OE *spic*, etc., on the one hand and Skt. *pī́van-* and *sphā́yate* on the other: old **spXy-*, zero grade to *speXy-* in the Sanskrit verb form, became metathesized **spyX-* in position before consonant (cf. Skt. *sphīta-*); laryngeal of the root plus **w-* of the suffix are reflexted by Gmc. *k*(*k*). It thus seems unnecessary to assume (with Lehmann, *PIEP* 51) analogical changes within the Germanic forms.

On the other hand, the forms OE *tácor*, OHG *zeichur* 'brother-in-law' cannot be explained without just such an assumption. Some details in Lehmann's proposal can be improved upon: Lehmann postulates a protoform **deXywer*, with ablaut variation in different case forms; to arrive at Gmc. *k*(*k*), he has to claim a reduction of **eXyw* to **aXw*. This is hard to accept; the difficulties are, however, removed once one sets up an alternation **déXywr* : **dXywér*: **Xy* in the latter form would become **yX* by metathesis and **Xw* would appear in sequence. Like Lehmann, I have to assume generalization of the root vocalism of the one alternant and of the **k* consonantism of the other to account for the Germanic forms.

Of Lehmann's other examples, OE *naca*, etc., 'boat', and NHG *hacken*, etc., seem entirely acceptable, with cognates in both cases showing long vowel before **w*: Skt. *náu-* 'ship', Toch. B *kowän* 'he will kill' (< **koAw-*). To explain OIcel. *nór* 'boat' and OE *nówend* 'skipper', it seems better to assume a transfer of originally nonthematic forms (in which the reflex of **Aw* would have occurred before consonant) to the thematic inflection, rather than to operate once with contraction, once without it, as Lehmann (*PIEP* 49) does.

It is interesting to note that the Germanic reflex *k*(*k*) is doubtful for Gothic. The match of OE *cwic*, etc., 'alive', is Goth. *qius**; the formal relationship to Skt. *jīvá-*, etc., is not clear in all details, but obviously there is no *k* in the Gothic form. The only attestation of a possible *k* reflex in Gothic[19] is in the word for 'spit', dat. sg. *spaiskuldra* (John 9.6) which resembles OS *spēkaldra* and OHG *speihhaltra*, MHG *speicholter*, without being an exact match. The morphological details of these forms remain obscure; we do not know that we are dealing with a simplex extended by derivational suffixes rather than with a compound, to name just one problem (that the German forms show the word-interior development of a spirant does not enable us to decide for or against an analysis as a compound – note the typically interior development at the onset of the second member of a compound in OHG *mezzi-rahs* 'knife'). In any case, it seems necessary to refrain from all attempts at an interpretation of the Gothic, Old Saxon, and Old and Middle High German words in terms of the laryngeal theory. If this is so, our only indication of the treatment of **Xw* in Gothic would be *qius*, and we find ourselves faced with the interesting possibility that the *k*(*k*) reflex did not extend to Gothic – an observation of considerable consequence both for our understanding of the chronology of the change and for our thinking about subgroupings within Germanic.

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[19] Unless one wants to accept W. Cowgill's interpretation of Goth. *ugkis* 'the two of us', *igqis* 'the two of you'.

That a Verschärfung phenomenon should not be shared by all Germanic dialects is not entirely surprising: West Germanic, after all, does not show the development of *ggw*, etc., so prominent in Norse and Gothic. We shall now briefly turn to this feature.

If *ggw* did indeed result from a combination of **w* with an adjacent reflex of a laryngeal (and weighing the available evidence, there seems no way to escape this conclusion), and if, as pointed out before, **Xw* yielded West and North Germanic *k*(*k*) at least before a vowel, and if finally **wX* before consonant, whether from old **wX* or metathesized from **Xw*, was reflected by Gmc. *ū* (cf. OIcel. *búr* 'chamber', *súrr* 'sour'), we have to assume that *ggw* was the prevocalic reflex of **wX*. This is essentially in agreement with Lehmann's findings (*PIEP* 46); particularly significant are examples such as forms of OIcel. *búa* 'dwell' (*biugga*, *bioggom*; *PIEP* 41) and forms like Goth. *triggws* and its correspondences – the first, because other Indo-European languages show reflex of laryngeal following **w* in full-grade forms (cf. Skt. *bhávitum*), the second, because clear evidence of other languages points to the absence of a laryngeal before **w* in full-grade state II forms.

To be sure, there remain some difficulties. Occasionally, the position of the laryngeal in full-grade forms cannot be completely ascertained. Thus, Lehmann's contention (*PIEP* 42–43) that the Germanic forms for 'chew' reflect a base with laryngeal (he adduces the Lithuanian form *žiáunos* 'Kiefer' in evidence) is strongly supported by the forms of the Tocharian verb for 'eat', B/A *śwātsi* (cf. Krause, *Westtocharische Grammatik* 1.294; Sieg-Siegling-Schulze, *Tocharische Grammatik* 475; for the etymology cf. O. Schrader, *Reallexikon der indogermanischen Altertumskunde*^{2} 1.327; Krause-Thomas, *Tocharisches Elementarbuch* 1.66). The Tocharian forms confirm a zero grade with **wX* (*śwātsi* < **ǵywX-ty-ey*), but as we have seen, this sequence might be due to metathesis. The question arises whether some rather opaque B forms can be derived from a full grade of the base: in particular the present participle *śawāñca*, with an isolated -*ā*- instead of the usual thematic vowel (palatalizing) -*e*- (cf. Krause, *WTG* 1.34), may reflect **ǵyowX-ent*- or **ǵyowX-nt*-, with the vowel of the first syllable affected by -*a*- umlaut (cf. *IF* 67.1962.32–33). If this analysis is correct, Tocharian B would attest a full grade involving the sequence **VwX* as required by Lehmann's interpretation of OIcel. *tyggia* 'chew'.

More troublesome yet than this instance of possibly insufficient data is another one where the attested occurrence of *ggw* directly contradicts our basic assumptions: We will be reluctant to separate Icel. *söggr* 'something damp' and its West Germanic correspondences from the base **seOw-* discussed above; yet, for intervocalic **Xw* we would expect to find a reflex *k*(*k*) and not *ggw*. We may of course resort to the assumption of analogical interference; we may even go so far as to suggest that the word for 'dew' (Icel. *dögg*) might be the source, but here we cannot be sure whether Skt. *dhavate* 'runs, flows', Gk. θέω 'run' are old aniṭ forms or thematized seṭ forms with regular loss of laryngeal reflex in prevocalic position; the decision is not made easier by the occurrence of the competing Sanskrit form *dhā́vati.*

Similarly, a sequence **wX* cannot be confirmed for the forms underlying OIcel. *hǫggua*, OHG *houwan*, etc., 'strike'; Lehmann's assumption of an extension of **keAw-* by a laryngeal suffix (*PIEP* 43) is purely ad-hoc. One could claim that the Tocharian B form *kāwalyñe* (verbal abstract) with its unexpected *-a-* shows just the **X* extension we need, but this evidence is not compelling. One is tempted again to consider the possibility of analogical change: OIcel. *hnøggua* 'strike, push' would indeed offer a pattern, but related full-grade forms in other languages (cf. Gk. κνόος 'squeaking of a wheel; noise of feet when marching') offer the same problems as encountered above in the case of 'run': to be sure, a base form with **eXw* can be ruled out, but not one with **ew*, and this clearly leaves the postulated **ewX* without immediate support.

Up to this point, we have dealt only with Germanic reflexes of laryngeal and **w*. Lehmann points out (*PIEP* 40) that Austin had failed to provide examples for Gmc. *k* resulting from **Xy*; Austin's counterclaim (*Lg*. 34.1958.205) is hard to understand: Aeolic στω(ϝ)ίᾱ proves at best a sequence **oAw*, which one might rediscover in NE *stack*, were it not for such a striking parallel as Russ. *stog* 'haystack', which points to **steg-* rather than **steA-* for the Germanic items (cf. Walde-Pokorny 2.622). In the preliminary edition (p. 176) I tentatively accepted Austin's interpretations of NE *wick* and *slack*; both are rejected by E. Polomé (this volume p. 40), and I now tend to agree with the rejection. Instead of dwelling any further on Austin's suggestions, we return to Lehmann's discussion of the sources of Goth. *ddj* and OIcel. *ggi* (*PIEP* 44–45).

Among the forms adduced by Lehmann, there are several for which a full-grade sequence **eXy* can be posited with great certainty; this applies in particular to Goth. *daddjan* 'suckle' (cf. H. Hirt, *Indogermanische Grammatik* 2.67) and Goth. *iddja* 'went', if the latter is an old perfect form with the stem **Ey-Ey-* (for formations of this type cf. *Lg*. 26.1950.365–370). On the other hand, the genitive forms of 'two', Goth. *twaddjē*, OIcel. *tueggia*, are conveniently explained as based on the neuter of the numeral, that is, derived from **dwo-yE* plus the ending of the genitive plural; this explanation appears simpler than that advanced by K. Brugmann, *Grundriss* 2.2^{2}.77, and tentatively accepted by Lehmann (for *_-yE_ of the neuter dual cf. _Lg._ 38.1962.123); for Lehmann's reconstructed Germanic forms *_twaXyōn_, etc., I fail to see any support.

It seems that we have to consider these rather scant data an indication that both *_Xy_ and *_yX_ in intervocalic position yielded Goth. _ddj_, OIcel. _ggi_. This is bewildering, especially if the dialectal distribution of the _k(k)_ reflex is indeed as proposed above, but a parallelism between *_Xy_ and *_Xw_ as suggested by Austin does not seem demonstrable.

2. So far we have found Toch. B /a/, A /ā/, etc., to correspond to PIE _ə_. In addition we find a Tocharian reflex that is identical with the reflex of PIE _e_ (unstressed); it is highly significant that in several certain cases this reflex occurs in forms where Greek, too, has an _e_ corresponding to the usual _ə_ reflexes of other Indo-European languages (for the situation in Armenian see this volume p. 101). The agreement between Tocharian and Greek makes it next to impossible to maintain the contention that the three _ə_ reflexes of Greek were due to split of one undifferentiated Proto-Indo-European phoneme; the most impressive cases of _ə_ not yielding B /a/, etc., certainly cannot be explained as due to an assimilation of a unitary _ə_ reflex to a full-grade vowel with _ē_ vocalism, since there is no likelihood whatsoever that parallel forms with full-grade vocalism ever existed in Tocharian times in these specific instances.

Clear parallels between Tocharian and Greek exist in the following cases:

B _āñme_, A _āñm-_ 'ātman' : Gk. ἄνεμος, Lat. _animus_
B _-i-/-ī-_, A _-i-_, suffix of the athematic optative : Gk. _-yē-/-ī-_ in εἴην, εἶμεν
B *_-yə_, A *_-yə_, ending of the neuter dual: Gk. *_-ye_ in ὄσσε 'eyes', cf. Skt. _akṣī_, OCS _oči_

The unextended form of the A word for 'self' shows an extra dental: _āñcäm_. Whether this points to an earlier coexistence, within Tocharian, of a word with *_t_ and without *_t_, continuing the two competing Proto-Indo-European terms for 'breath, wind, soul' that are represented by Skt. _ātman-_ and Gk. ἄνεμος, or whether a new attempt should be made to subsume these terms under one single formula (but note the difficulties one would face in Germanic!), seems impossible to decide. The optative suffix is followed by athematic endings in A (cf. Sieg-Siegling-Schulze 373–383), by thematic ones in B (cf. _Westtocharische Grammatik_ 1.212–213) except that the first person of the active singular is always athematic and that a few recognizably athematic forms occur with stems in /-a/; vowel gradation of the optative suffix has not survived at all. For the dual endings cf. _Lg._ 38.1962.123; note that the palatalization as found in the dual of 'knee', B _keni_ (< *_kenw-_ plus ending) cannot be explained by positing an _-i_ or _-ī_ suffix for Tocharian: vocalic *_i_ does not palatalize preceding _w_ in B – witness B _wase_ 'poison' : Skt. _viṣá-_ (cf. _IF_ 67.1962.31). In position after palatalizable consonant, PToch. _yə_ is reflected by palatalization of this consonant in both B and A (cf. B _eś_, A _aśäṃ_ 'eyes' < PToch. _ek_^{w}_-yə_); if *_y_ does not coalesce with the preceding consonant, it becomes vocalized in B (cf. _pwāri-ne_ 'the two fires' [locative]), while in A, where all

Proto-Tocharian final vowels were lost, the development PToch. *yə* > A *i* is attested only in the interior of an old compound form, A *wiki* (B *ikäṃ*) 'twenty' (cf. this volume p. 204).

2.1. In the preliminary edition of this volume, forms were cited that appear to show progressive palatalization ascribable to the influence of a reflex of **E*. The forms discussed were B, A *ṣäm*- 'sit', B *ñem*, A *ñom* 'name', B *ñäś* 'I, me'.

B, A *ṣäm*- was explained as an *-m* extension of the root found in Hitt. *e-eš-zi*, Skt. *āste*, Gk. ἧμαι (for recent discussions of these forms cf. M. Mayrhofer, *Kurzgefasstes etymologisches Wörterbuch des Altindischen* 1.84; Hj. Frisk, *Griechisches etymologisches Wörterbuch* 1.633–634). It seems justified to view the long vowels of Greek and Indo-Iranian as lengthened grade vowels; if so, the underlying root **Ees*- would be homophonous with that of the verb 'to be'. It was shown in *IF* 67.1962.27–28 that Tocharian employs widely verb stems ending in *-m* where other Indo-European languages have stems in *-X* or *-m*. One may consider it possible that the *-m* extension found in verbs denoting 'come' and 'stand' as well as 'place' and 'build' was transferred to a verb meaning 'sit'. None of the forms B *käm*- 'come', *stäm-ā*- 'stand', *täm*- 'beget' (: **dheE*- 'place; make'), *tsäm*- 'build up' shows initial palatalization; it seems, therefore, best to consider *-äm*- as nonpalatalizing and to ascribe *ṣ*- in *ṣäm*- to a different cause, namely, to the palatalizing influence of a reflex of PIE *E*-. If this assumption is correct, we will have to consider B *yasar*, A *ysär* 'blood' as a match of Hitt. *eshar* and not of Lat. *aser* as far as the ablaut grade of the first syllable is concerned: both the B and the A forms would reflect **EesAr* and would have to be compared with A *por* 'fire' and not with B *pūwar*,[20] as was suggested in the preliminary edition.

B *ñem*, A *ñom* 'name' have been much discussed. Were it not for the *ñ*-, the forms could be safely derived from either *(*X*)*nomn* or *(*X*)*nōmn*. To ascribe the palatalization to the vowel after *ñ*- would mean to isolate the Tocharian words from all their Indo-European cognates; to attempt to compare the Tocharian forms with such items as Finn. *nimi*, etc., as proposed again by A. J. Van Windekens, *Orbis* 11.1962.607, remains methodologically indefensible until special connections between Tocharian and Finno-Ugric have been more soundly established than in the just mentioned article by Van Windekens. Moreover, and this is of course of decisive importance, there is good evidence available that PToch. *ñem*- should have yielded *ñom* in both languages and not just in A: PIE *Eeg*^{w}*h*- is represented by *yok*- in B, A *yoktsi* 'drink'; the accusative of B *samp* (/sə́mp/) is B *comp* 'that one' (beside B *ce* : *se*, *cew* : *su* 'he, this one'). It is therefore better to ascribe the palatalization found in *ñ*- to influence from a source other than the following vowel. Since in Greek the repeatedly attested inscriptional form *ENYMA*- is hardly due to error, it becomes necessary to derive initial ὀ- in other Greek forms from assimilated ἐ-; as both Greek and Armenian have the prothetic vowel, it is best to take it to reflect a vocalized laryngeal, and Armenian, with its extensive evidence for umlaut of **e* before *a* and *u*, presents no obstacle to the assumption that the initial laryngeal was an **E*. We therefore take the Tocharian forms to reflect **Enomn* (or, less likely, **Enōmn*) with progressive palatalization as found in *ṣäm-*.[21]

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[20] Since Toch. *-r*- may represent **-dr*-, it must be admitted as a possibility that B *war*, A *wär* 'water' that was explained in the preliminary version as a zero grade **Xwr* matching **pwXr* is rather to be derived from **wdr*-, possibly extracted from derived forms such as the adjective B *wriye* 'pertaining to water.'

The discussion of forms for 'I, me' included in this context in the preliminary version had to operate with a number of hazardous assumptions, crucial among which was the claim that **Em-* could have yielded *ñ-* in Tocharian. Since no supporting evidence can be found to strengthen this claim, it seems best to abandon it altogether. We may consider an alternative possibility instead: B *ñäś* (*ñiś*) 'I, me' and A *näṣ* 'I, me (masculine)', explained as dissimilated from **ñäṣ* by H. Pedersen, *Tocharisch vom Gesichtspunkt der indoeuropäischen Sprachvergleichung* 135, can both be derived from PIE *-ne* followed by a consonant which in the case of B could directly reflect PIE *ǵ* as found in Goth. *ik*, *mik*, etc. Since the Tocharian forms are used for both the nominative and the accusative, we are at liberty to derive them from either of the two cases of the Indo-European personal pronoun. I suggest that we compare the Tocharian forms directly with the *-n-* forms of the first-person singular pronoun of other Indo-European languages, in particular with those of Slavic and Baltic. B *ñäś* may thus be placed (as **Emne-ǵe*) alongside OCS *mene*; in Tocharian, as in Slavic and Baltic, the *-n-* would thus be found with wider than original distribution (for which Av. *mana* [genitive] is to be compared). Reduction of **-mn-* to *-n-* is found in other Tocharian forms, though under conditions still undetermined (cf. B *stām*, plural *stāna*, 'tree'); it would thus be possible to derive B *ñäś* and the related forms from reflex of PIE *n* preceded immediately by reflex of PIE *E*. To be sure, the palatalization in B *ñäś* itself can be neatly derived from the following **e*; however, this does not prove to be an explanation for the palatalization in the genitive B *ñi*, A *ñi* (masculine), *nāñi* (feminine) or the nominative-accusative feminine A *ñuk*. Obviously only B, A *ñi* is likely to have a Proto-Indo-European source; the feminine forms of A should be innovations. The closest parallels to B, A *ñi* are the dative forms of OCS *mьně* and OPruss. *mennei*; in both cases, a derivation from **-noy* seems required, and **-noy* would yield Toch. *-ni*,[22] not *-ñi*. If we do not want to assume an analogical spread of the feature of palatalization to cases other than the accusative (which remains of course a possibility), we have no choice but to consider the palatalization in *ñi* as parallel to that found in B *ñem*, A *ñom*, that is, as due to the influence of the reflex of PIE *E* upon a following **n*: as B *ñem* was analyzed as reflecting PIE *Enomn̥*, so B *ñi* would be taken to represent **E*(*m*)*noy*.

Even under the modified theory presented here, no satisfactory analysis of the feminine forms of A is possible.

2.1.1. A further example of progressive palatalization due to a reflex of **E* can be seen in the Tocharian word for 'twenty', B *ikäṃ*, A *wiki*. As was pointed out above (p. 201), a form like B *wase* 'poison' (: Skt. *viṣá-*) shows clearly that *w-* is not palatalized in position before **i*; still, B *ikäṃ* does not have *w-*. In A, *w* is not palatalized at all; there is the possibility that this situation is the result of a secondary depalatalization in A. Be that as it may, the initial **y-* of B *ikäṃ* cannot be explained as due to the influence of the following vowel. Inasmuch as Greek (outside North-West Greek) has a 'prothetic vowel' ἒ- in its word for 'twenty', and inasmuch Arm. *kʻsan* 'twenty' shows the reflex of initial **Xw-* and not of **w-* (cf. this volume p. 106), it seems proper to ascribe the initial palatalization in B *ikäṃ* to the influence of an **E* reflex, and to reconstruct the pre-form of the B word as **Ew-yE* + *(d)ḱmt-yE*.

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[21] Note here E. Sapir's discussion, *Language* 14.1938.272.

[22] This development is regular for unstressed forms and for final syllables of polysyllabics.

2.2. The absence of an overt laryngeal reflex in B *pärweṣṣe* 'first', *yparwe* 'at first' (: Skt. *pūrva-*) was tentatively interpreted in the preliminary version of this chapter as requiring a reconstruction involving PIE *E*. This decision leads to considerable difficulties in the analysis of such items as Gk. πρῶτος, Doric πρᾶτος; unless one wants to operate with the assumption of a uniform reflex of **RX* regardless of the nature of the laryngeal, it proves impossible to explain the vocalism of the Greek forms on the basis of **RE*. However, a quite different solution appears to be available:

We have seen above (p. 199) that B *śwātsi* is to be interpreted as containing a stem reflecting PIE *ǵywX-*. The reflex of the laryngeal is found in all forms of the verb 'to eat' except in one subset: the past participle is B *śeśu*, the *-r* noun B *śeśuwer* (or *śeśwor* B 407 [MQR] b 3). These forms are exact parallels to forms of an aniṭ verb, **kutsi* 'pour' (PIE *ǵhew-*; for a display of forms found attested cf. Krause, *Westtocharische Grammatik* 1.236–237): the *-r* noun here is B *kekuwer*. The simplest way to explain B *śeśuwer* is to assume that here /a/ was lost in position between /w/ and /w/ of the next syllable, perhaps by way of an intermediate development */a/ > */u/. The likelihood of this explanation is greatly increased when we note such forms as B *śauwwa*, *śauwa* 'I caused to be killed' instead of an expected **śauwawa* (cf. B *myāskawa*, *yātkawa*, etc.). That we are not dealing with a haplology phenomenon is indicated by a form showing loss of /a/ between /y/ and /w/ of the following syllable: instead of expectable **wawāyauwa* we find *wawaywa* as the collective form associated with *wawāyau* 'led'. A condition for the loss seems to be that the /a/ in question be unstressed, since /á/ is preserved in position between /y/ and /w/ in B *klayāwa* 'I fell'. If the loss can be assumed to have extended to the sequence /rawV/, then B *pärweṣṣe* and *yparwe* would be entirely regular developments from PIE *prOwo-* or *prAwo-* as reflected in Skt. *pūrva-*.[23]

The conditioned loss of the reflex of **A* or **O* seems a development of some antiquity. B evidence shows that it antedates the reduction of the *-tw-* cluster (cf. Krause-Thomas, *Tocharisches Elementarbuch* 1.70, with slightly different conclusions): *yātwa* 'I adorned' presupposes **yātwawa*, with the *-tw-* cluster preserved in B (A) *yetwe* 'ornament'. Even more significant is the fact that the A word related to B

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[23] The preservation of unstressed /a/ in *cālawa* may have to be viewed in the context of more general differences in the distributional properties of B *r* and *l*.

pärweṣṣe, A _pärwat_ 'first', also is characterized by the absence of an overt laryngeal reflex; this would seem to indicate that the loss of the vowel under the conditions described dates from a period prior to the separation of A and B.

2.3. While the absence of an overt laryngeal reflex in B _pärweṣṣe_ and A _pärwat_ can thus be explained, the same reasoning cannot be applied to a few other forms for which one would be inclined to reconstruct Proto-Indo-European pre-forms with laryngeal; they will require some more detailed discussion.

B _melte_ 'elevation' (found in _kewiye melte_ FM 3 b 3 'heap of cowdung') and A _*malt-_ 'prominent place' (attested in the derivative _malto_ 'occupying the most prominent place' in _maltow inu_ 'first', literally: 'going while occupying the first position'; cf. _KZ_ 71.1953.8–10) have been connected with Skt. _mūrdhan-_ 'peak' (cf., most recently, Krause-Thomas, _Tocharisches Elementarbuch_ 1.161). If the connection is justified, then the Tocharian words would have to be derived from _*molXdho-_, and one might be inclined to view the loss of laryngeal reflex in a form with _*o_ grade as related to the phenomenon observable in Gk. τόρμος and τορνεύω vs. τέρετρον. However, are B _melte_ and A _*malt-_ really to be matched with Skt. _mūrdhan-_? Obviously, the Sanskrit form could be derived from _*mrXdh-_ and not from _*mlXdh-_; Gk. βλωθρός 'tall' could be associated with _*mrXdh-_ by the assumption of a dissimilation (cf. V. Pisani, _KZ_ 62.1935.271). If _*mrXdh-_ was indeed the source of the Sanskrit and Greek forms, then B _melte_ and A _*malt-_ could of course not possibly be related to them. However, another Tocharian connection would become probable: O. Schrader, _Reallexikon der indogermanischen Altertumskunde_^{2} 1.634, proposed to equate with the Indic word the Tocharian A term _mrāc_ 'head' (the B equivalent _mrāś_ [accusative; Bil 25] did not become known until recently); this connection was rejected by Van Windekens (_Lexique étymologique_ 69–70), but without good reason (palatalized _*dh_ does give B, A _c_ [cf. _IF_ 67.1962.22–23, 27]; the development of _-ś_ from _*-c_ is a normal feature of the eastern dialect of B [cf. _JAOS_ 75.1955.222]). There is no objection to a derivation of A _mrāc_ from _*mrXdh-_ with palatalization of the stem-final consonant; if the vocalism of Gk. βλωθρός permits an identification of the laryngeal as _*O_, the formula could be further specified to read _*mrOdh-_. As for B _melte_ and A _*malt-_, they can be connected as before with OE _molda_ 'top of the head' and other Germanic and (perhaps) Celtic forms, none of which gives evidence of a laryngeal in the base (cf. Walde-Pokorny 2.295).

While B _melte_ thus cannot be considered as offering proof of the absence of a laryngeal reflex, two other forms seem to do just that.

B _pällew_ 'full' (with reference to the moon) is to be compared directly with Av. _parənah-vant-_ 'ample' and Skt. _parīṇas-_ 'fullness', that is, it is to be derived from _*pelEno(s)-went-/-wnt-_.[24] One must assume that the expected development _*pälyne-_

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[24] The derived form apparently is based on the noun stem as developed through the loss of final _*-s_; if it were an older formation, one would expect to find _*pällessu_ rather than _pällew_. The same argument applies to B _klyomo_, A _klyom_, if that is based on the noun represented by B _-kälywe_, A-_klyu_, as suggested in footnote 4. One can hardly escape the conclusion that loss of _*-s_ (and more likely than not of at least some other final consonants) antedates the separation of A and B.

first underwent change to **pälne-* and then to *pälle-*; the latter change is amply attested (cf. *talläw* 'miserable', *kallau* 'gain'); for a duplication of the entire assimilative process **-lyn-* > *-ll-* cf. *mällästrä* 'he presses, suppresses', *-näsk-* extension of the stem found in *melyeṃ* 'they press, smash', although here the *-ly-* is of different origin.

B **pilto* (attested only in the accusative singular *pilta*, the dual *piltāṣ*, and the plural *piltāsa*), A *pält* 'leaf' cannot be separated from OHG *blat* 'leaf', *blāt* 'blossom' and related words in other Indo-European languages that provide ample evidence for a base of the shape **bhleX-* (cf. Walde-Pokorny 2.176–177). The laryngeal can be identified as **E* (cf. OHG *blāt*); if the Tocharian forms reflected **bhlEdh-* (cf. OHG *blat*), one would expect to find them as **pälyt-*. The loss of the palatalization before *-t-* has its good parallels (cf. B *klyentär* 'they stand' : *kalträ* 'he stands'); however, the *-i-*vocalism of the B form presents some problems: it may be due to the influence of other nouns in *-o* that reflect old **e* vocalism of the stem (cf. *pilko* 'glance', *misko* 'trade'), although these belong to a different declension class.

2.4. The seeming exceptions B *pärweṣṣe*, *melte*, *pällew*, **pilto* thus explained, we can state in conclusion of the first part of our investigation that Tocharian offers clear evidence for two distinct vocalic reflexes of laryngeals: B /a/, A /ā/, etc., for **A* and **O*; B and A palatalization, that is, PToch. *'ə*, for **E*.

It should be noted that for the argument in 2.1 it was implicitly assumed that the vocalic reflex of **E* in Proto-Tocharian occurred also in initial position; if Van Windekens (*Lexique étymologique* 8) should be right in comparing B *astare*, A *āṣtär* 'clear, pure' with Gk. ἀστήρ, this would be a case of survival of initial vocalic **A* reflex. It must, however, not be overlooked that the Tocharian word for 'star' is B *ścirye*, A *śreñ* (plural), and that in all likelihood the adjective 'clear' is formed with a *-re* (*-r*) suffix; cf. above section 1. Absolutely certain reflexes of **A-* and **O-* before consonant seem to be lacking.[25]

3. Having investigated the vocalic reflexes of laryngeals in Tocharian, we shall now study some peculiar consonantal developments that one may be inclined to interpret as being connected with laryngeals.

3.1. The word **pilto* 'leaf' just discussed belongs to a small inflectional class characterized by an accusative in /-a/ and a plural in /-ásа/; our material attests only one further member of this class: B *luwo* 'animal', accusative *luwa*, plural *lwāsa*. Krause and Thomas (*Tocharisches Elementarbuch* 1.118–119) speak of an "*s*-Erweiterung". The corresponding A forms show a peculiarly different development: A *pält* 'leaf' has a plural *pältwā*, the vocalic final of which must be secondary; the derived cases show indeed an extra consonant before the ending: the ablative is *pältwākäṣ*. The same phenomenon recurs in the match of B *luwo*, A *lu* 'animal': here the nominative-accusative plural is *lwā*, the genitive *lwākis*, the locative *lwākaṃ*, etc. The extra

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[25] If zero-grade vocalism is typical for B *-re*/A *-r* adjectives, and if B *aikare* 'empty' is to be compared with Lat. *aeger* (Krause-Thomas 56), this form would seem to represent an acceptable example for **Xy-*.

-k- is also found in plural forms of A *p*^{u}*käl* 'year' – the locative is *puklākaṃ*.[26]

The B forms show clearly that the extra consonant appears when an ending /-a/ (probably from PIE *-ə* [i.e., **-A*] and not from PIE *-ā*, as suggested by Krause and Thomas [*Elementarbuch* 1.118]) is attached to a stem in /-a/. For A, an even more general formulation is appropriate: the extra consonant occurs when an ending beginning with a vowel is attached to a stem in /*-ā*/.

This more general formulation lets us account for two isolated verb forms of A: the third person singular forms of the optative of *päk(n)ā-* 'intend' and *yäk(n)ā-* 'be negligent' are *päknāśiträ* and *yäknāśśiträ*. *-ś-* results from the palatalization of **k* before the following *-i-* of the optative.

An extra **k* before vowel is also to be found in the paradigm of the A verb for 'to beg': the infinitive is *pānässi*, but the past participle *pāpśu*, and a related noun *pāśe* 'request'. Sieg-Siegling-Schulze (*Tocharische Grammatik* 389) suggest that *-ś-* might have been lost before *-n-* of the present-stem forms; however, it seems much better to derive *pāśe* from **pā-k-'e*, and to compare the paradigm of 'to beg' with the second paradigm of 'to hear' (Sieg-Siegling-Schulze 437).

So far our findings seem to indicate that in position between B /a/, A /ā/, etc., and following vowel an extra consonant occurs, and that this consonant is an *-s-* in B, a *-k-* in A. However, the picture is in reality much more complicated.

Beside forms with a correspondence B *-s-* : A *-k-* we find others in which both languages have either *-s-* or *-k-*.

In 1.2.1, reference was made to the curious stem alternation in the Tocharian word for 'to rain': the athematic present-stem forms contrasted with forms of the preterit and subjunctive stems and of the derived causative in that the latter all showed an extra *-s-*. The distribution of this *-s-*, which does not have a match in related Indo-European forms, is like that of *-s-* and *-k-* in the forms just discussed: it occurs when the stem ending in B /-a/, A /-ā/ is extended by a suffix beginning with a vowel; in B, this vowel seems to have been, at least at the earliest reconstructable stage, an /a/. As pointed out before, a special problem is posed by the noun 'rain', B *swese*, A *swase*, forms that do not contain the vowel B /a/, A /ā/ in their stems. It would in theory be possible to derive B *swese* from **swōso-* and to claim a wider range of occurrence for the phenomenon of the extra *-s-*, but it seems even better to consider *swese* a back-formation based on the preterit-subjunctive stem *swāsa-*, representing the reversal of the development found in the derivation of *wāpa-* 'weave' from *wepe* 'Gewebe', *kraupa-* 'gather' from *kraupe* 'collection', *yāta-* 'adorn' from *yetwe* 'Schmuck', etc.

Special problems are again posed by the occurrence of *-s-* in part of the stems of the verb 'to place'. Beside *-s*-less forms, as in the past participle B *tättāw*, A *to*, forms with *-s-* are found in both languages, as, for instance, in the preterit B *tessa*, A *casäs* 'he placed', the past participle B *tatāsau*, or the present participle of the mediopassive A *tāsmāṃ*. The interpretation of these phenomena is by no means easy. First, a decision as to the etymology of the Tocharian verb would be helpful; however, the equation with Skt. *dádhāti* (W. Petersen, *Language* 9.1933.17), which seems most natural, becomes questionable in the light of the fact that B shows no trace of a palatalization of the initial consonant, and that /a/ cannot readily be derived from **E*. For our immediate problem it is more significant that -*s*- occurs preceding a consonant (-*s*-) and that therefore a parallel analysis of the verbs 'to place' and 'to rain' seems inadvisable.

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[26] For the forms attested cf. Sieg-Siegling-Schulze 92.

If the past-participle form B *twoṣ* is indeed correctly identified (see the discussion by Krause, *Westtocharische Grammatik* 1.163), then the verb B *twā*- 'kindle' can be viewed as parallel to the verb 'rain': the infinitive *twāsasi* is a match to the form expected beside *swāsaṃ* 'it will rain'. However, the present stem would, under this analysis, have to be considered as having been reshaped after the preterit-subjunctive stem: the form attested for the third person singular mediopassive is *twasastär* (not to be identified as a causative form, as proposed by Krause 249). The A forms of the preterit and the subjunctive (cf. Sieg-Siegling-Schulze 444) all contain a stem *twās*(*ā*)-. The present form connected with this stem by the authors of the *Tocharische Grammatik* (p. 441), *tuṣt* (found in A 92 a 5), remains unclear in regard to its analysis and even to its meaning.

Two more forms with B -*s*- after /a/ deserve mention here, although no exact parallels can be cited from A.

Beside a past participle *wätkau* of *wätkā*- 'decide' we find a third person singular of the preterit *otkasa*. As a normal match for *wätkau* we would expect **yatka*; a normal -*s*- preterit, on the other hand, should not have a vowel before the -*s*-, and most important, an -*s*- preterit should not occur beside an unreduplicated participle in -*au*. The present is formed with an -*sk*- suffix (cf. *wätkāṣṣälyne*).

A similar pattern of paradigmatic alignment is found in the verb 'wipe off': a present B *lyyastärne* is associated with a preterit *lyyāsa*. Here the corresponding A forms show no -*s*- in the preterit and subjunctive: the -*r* noun is *lyālyor*-, the verbal abstract *lyālune*; we are therefore entitled to the question whether the -*s*- of *lyyāsa* should be considered part of the simplest stem, or whether it should be viewed as a phenomenon parallel to the -*s*- in B *swāsa* 'it rained'. Krause (*Westtocharische Grammatik* 1.184–185) decides instead in favor of an analysis of *lyyāsa* as a normal -*s*-preterit; this has to be viewed with skepticism because of the parallelism between *lyyāsa* and *otkasa* and their respective present-stem forms. However, it must be strongly emphasized that significant details of these formations remain obscure.

Beside these forms with an extra -*s*- we have others where both languages show an extra -*k*-.

The present stem of the verb 'to call' is *kwā*- in B (in A we have suppletion). The preterit-subjunctive stem is B *kāka*-, A *kāk*-. That initial *k*- is in both languages from earlier *kw*- in this stem too, is made obvious by imperative forms with labial umlaut: B *pokkāka*, A p^{u}*kāksäṃ*. The occurrence of -*k*- in these forms is exactly parallel to the occurrence of -*s*- in forms of the verb 'to rain': B *kāka* 'he called' is to *kwāmane* (mediopassive present participle) as B *swāsa* is to *swāmane*.

The verb 'to be' is not represented by a unitary paradigm; as in other Indo-European languages, we find suppletion in Tocharian. In both languages, a stem *tāka-* (A *tāk[ā]-*) occurs in the preterit and subjunctive. However, in A the major part of the subjunctive proper is based not on a stem *tāk(ā)-*, but on a *-k-*less stem *tā-* (*tām*, *tāt*, *tāṣ*, etc.).[27] These shorter forms must be classified as athematic; they are thus analogous to the present forms of 'call' and 'rain', while the *-k-* forms are to be compared with the *-k-* and *-s-* forms B *kāka* and *swāsa*.

When we look back at the forms treated in this section, we have to conclude that there seems to be reasonable certainty that an "extra" *-k-* or *-s-* is found at the transition point between, in terms of B, an /a/ of the stem and an /a/ of a suffix. We may be inclined to view the wider spread of the phenomenon in A as due to secondary extension. In view of our earlier observations we will consider it likely that at least in some cases a sequence B /asa/ or /aka/ corresponds to a reconstructable sequence **X-X*(*V*)-. This applies to B *swāsa*, and it applies to B *kāka* and *tāka*. It seems reasonable to connect B *kwā-* as a zero grade form with Skt. *hávate* 'call' (participle *hūtá-*) and OCS *zъvati* 'call' (for further material cf. Walde-Pokorny 1.529), and A *tā-* should be connected with PIE *steA-* because of the imperative forms *päṣtāk* and *päṣtākäs* (cf. E. H. Sturtevant, *The Indo-Hittite laryngeals* 87), although the loss of the initial sibilant in all the other forms of A and B can at present not be explained; the use of **steA-* for the nondurative forms corresponding to durative 'to be' offers an interesting parallel to the use of *stanu* beside *budu* in Russian.[28]

It seems a priori unlikely that *-s-* should be claimed as the reflex of a laryngeal. For the verb forms it is not difficult to assume that *-s-* was transferred from the very common preterits with inherited *-s-* in at least some of their forms. Items like *piltāsa* 'leaves' and *lwāsa* 'animals' present a far greater problem: in B, which concerns us here, Proto-Indo-European *-s-* stem neuters have been transferred to the *-e-nt-* class (cf. *-kälywe* 'fame', *ṣalype* 'butter', etc.), and *-s-* survives only in a very few forms: *lwāke* 'pot', plural *lwāksa*, and perhaps *ere* 'appearance' beside the plurale tantum *ersna* 'shape'. Thus it seems difficult to assume an origin of the *-s-* of *lwāsa* in forms of the *-s-* declension, unless one wants to reckon with a transfer earlier than the reshaping of *-s-* stems as B *-e-nt-* formations. This is a distinct possibility, at least if one wants to consider the rather wide-spread *-su* adjective formation in both A and B as an indication of the former presence of a good number of nominal *-s-* stems in Tocharian (cf. *JAOS* 81.1961.274, 277–278 for some material).[29]

For *-k-*, on the other hand, an analogical origin is hard to substantiate; in particular, there seems to be no way in which the *-k-* of A *lwākis*, *pältwākäṣ*, *pukläkaṃ* or the palatalized **k* of A *päknāśiträ*, *yäknāśśiträ*, *pāpśu* can be explained except through the assumption that it represents a special Tocharian development in position between

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[27] Is B *taṃ* (B 496.3 [MQ]) a lone sample from a *-k*-less set in B? But note W. Thomas, *KZ* 71.1953.80, for an emendation of the passage.

[28] Note also OIr. *-tá* 'is' (cf. R. Thurneysen, *A grammar of Old Irish*² 133, 477).

[29] Cf. also footnote 24.

B /a/, A /ā/ and B /a/, A /ā/, sounds which reflect PIE *a* and *ə*, that is, **Ae* and **A*/**O*. Since the result of the contact was not a long-vowel reflex, the sequence PToch. -*aka*- must be derived from **X*-*X*-(*V*?)-, and not from **Ae*-*X*-. Whether one chooses to label the -*k*- a Hiatusbrecher or a laryngeal reflex, matters relatively little; in either case can we use the presence of a sequence PToch. -*aka*- to reconstruct earlier laryngeals in contact.

It may be noted in passing that we know next to nothing about the phonetic properties of intervocalic /k/. In Manichaean script, it is written with a -*g*- rather than a -*k*- in several passages of the hymn text of Bil; a vacillation between -*p*- and -*w*- for /p/ (cf. Krause-Thomas 1.69) may indicate spirantic pronunciation for a stop phoneme in sonantic environment. Thus, what is written -*k*- in the sequence /aka/ may phonetically well be a voiced spirant.

3.2. In the preliminary version of this paper I proposed to explain the rather numerous verbs with a -*k*- after -*t*- and -*s*- "stem" as containing a laryngeal reflex which originated in one specific position and spread to the rest of the paradigm. My argument was largely conditioned by the observation that in B nonpresentic forms with an /a/ suffix were found in one and the same paradigm with presentic forms with an /n/ infix and no /a/ suffix. I suggested that the -*k*- found throughout the paradigm had arisen in the presentic forms with nasal infix and thence spread to other forms of the paradigm where it now cooccurred with the /a/ with which it had been in complementary distribution. G. S. Lane has convinced me that this approach is beset with too many difficulties: In particular, one cannot assert with confidence that, if a nonpresentic stem of a paradigm contained the reflex of a laryngeal (/a/), its presentic stem must also contain such a reflex. Moreover, we do not yet know enough about the phonotactics of Proto-Tocharian to rule out the possibility that triconsonantal clusters **ssk* and **tsk* were reduced to *sk* and *tk*, respectively, notwithstanding the fact that in what may be later forms the -*sk*- sequence is preserved intact at least in B.

4. In the preliminary version, a discussion of some very productive verb classes (B -*e*- and -*o*- presents, B -*n*-*a*- presents) was included. As the arguments involved are fairly complex, affecting our understanding of the entire Tocharian verb system, while at the same time no entirely new information can be gained about the reflexes of Proto-Indo-European laryngeals in Tocharian, it seems better to refrain from a full treatment of the problems involved at this point; the discussion will be resumed in the context of a comprehensive analysis of the Tocharian verb system to be published elsewhere.

5. If, in conclusion, one were asked to assess the importance of information to be obtained from Tocharian for a general theory of Indo-European laryngeals, two points immediately assume the greatest importance: The Tocharian evidence eliminates the possibility of operating with a single shwa for some stage prior to the development of the Einzelsprachen, and it helps to clarify details of the ablaut system, in

particular the identity of the zero grades of **CeRX*- and **CeXR*-. It obviously cannot be expected to yield information in a controversy like that over the existence or non-existence of distinctive voice in laryngeals; on the other hand, it may eventually contribute valuable insights concerning the question of consonantal reflexes of laryngeals, although it seems best to confine oneself to a recording of observations such as found in section 3, at least for the time being.

GERMANIC EVIDENCE

WINFRED P. LEHMANN

1. The Germanic material has been well exploited for reflexes of the Proto-Indo-European laryngeals. Since Austin's article on the etymology of English *big*, published more than twenty years ago in *Language*,[1] there have been numerous discussions of possible Germanic evidence for laryngeals, some in articles devoted specifically to Germanic, others in more general works. The length of time the subject has been discussed may be measured by the objectivity we now find among scholars of conflicting views. We can also assume general acquaintance with the Germanic phenomena explained with the aid of laryngeals.

The Germanic phenomena adduced do not differ appreciably in the studies devoted to Germanic reflexes of laryngeals; yet we find differences in the interpretations they provide. It is apparent, as we review the various discussions dealing with Germanic, and with the other Indo-European dialects, that the linguistic approaches underlying them must be carefully scrutinized. For particularly when we are dealing with a small amount of data from which we attempt to reconstruct earlier patterns, differing views on the analysis of language in its change may lead to markedly different interpretations. This paper will therefore be directed primarily at the methods applied in interpretation, after a brief review of the Germanic phenomena which have been associated with the laryngeal theory. It is assumed that corroborative evidence in other dialects is well understood. Accordingly only brief indications of evidence in other dialects are included here.

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[1] W. M. Austin, "The Etymology of English *big*", *Language* 15.249–50 (1939). Other treatments of the Germanic data are: H. L. Smith, Jr., "The Verschärfung in Germanic", *Language* 17.93–98 (1941); W. M. Austin, "A corollary to the Germanic Verschärfung", *Language* 22.109–11 (1946); F. van Coetsem, "Le renforcement des semi-voyelles intervocaliques en germanique (*j/jj* > gotique *ddj* etc.)", *Leuvense Bijdragen* 39.41–78 (1949); E. G. Polomé, "A West Germanic reflex of the Verschärfung", *Language* 25.182–89 (1949); E. G. Polomé, "Laryngaal-theorie en Germaanse Verscherping", *Handelingen der Zuidnederlandse Maatschappij voor Taal- en Letterkunde en Geschiedenis* 4.61–75 (1950); E. G. Polomé, "Zum heutigen Stand der Laryngaltheorie", *RBPh* 30.444–71, 1041–52 (1952); W. M. Austin, "Germanic Reflexes of Indo-European -*Hy*- and -*Hw*-", *Language* 34.203–11 (1958); E. G. Polomé, "Théorie laryngale et germanique", *Mélanges de linguistique et de philologie: Fernand Mossé in memoriam*, 387–402 (Paris, 1959). For more general works that also deal with Germanic see: E. H. Sturtevant, *The Indo-Hittite laryngeals* (Baltimore, 1942) [*IHL*]; L. L. Hammerich, "Laryngeal before Sonant", *Det Danske Videnskabernes Selskab, Historisk-filologiske Meddelelser* 31.3 (Copenhagen, 1948); W. P. Lehmann, *Proto-Indo-European Phonology* [*PIEP*] (Austin, 1952).

2.1 One set of Germanic forms which Germanists who accept the laryngeal theory look on as containing virtually certain data in favor of pre-Germanic laryngeals is the list which was first assembled by Holtzmann. Common to these forms is a lengthened *w* and *j* in the West Germanic dialects, *gg* plus *w* in North Germanic and Gothic, *gg* plus *j* in North Germanic and *dd* plus *j* in Gothic which correspond to single *w* and *j* or *y* in other Indo-European dialects.[2]

Examples are as follows:

-eww- < *-ewX-*:

1. OIcel. pret. *biugga, biuggom,* cf. inf. *búa* 'dwell', pret. ptc. *búenn*; note also OHG 3 pl. pret. inf. *biruun,* 2 sg. pret. subj. *biruuuis,* 2.6 below.
   OIcel. *byggja* 'inhabit'.
   OIcel. *bygg,* d. s. *byggue* 'barley', OE *bēow* 'barley', OS *beuuod* 'harvest'
   See Skt. *bhávitum* 'be', pret. ptc. *bhūtá-* in support of PIE *bhew-X-*; laryngeal cannot be identified.
2. OE *brēowan,* OS *breuwan,* MHG *briuwen* 'brew'; OIcel. pret. ptc. *brugginn,* OS *gibreuuan* 'brewed' [uww].
   See Lat. *dēfrūtum* 'cider', Thracian βρῦτος 'beer', which give uncertain evidence for positing laryngeal.
3. OIcel. *hryggua* 'be sorrowful', OS *hreuuan,* pret. *hrau,* OHG *riuuuon,* pret. *hrau* [aww].
   OIcel. *hryggr* 'sorrowful'.
   See Skt. *kravíḥ,* Gk. κρέας 'raw meat'.
4. Goth. *triggws,* OIcel. *tryggr,* OE *trīewe,* OS *triuwi,* OHG *gitriuwi* 'true'.
   See Lith. *drútas* 'strong', OHG *trūēn* 'trust'. Sturtevant, *IHL* 82, suggests *dr-ew-h-*.
   Cognates in other dialects indefinite or absent.
5. Goth. *bliggwan, blaggw, bluggwum, bluggwans* 'strike'; OHG *bliuwan,* OS *utbliuuid.*
   No certain cognates.
6. OIcel. *tyggia,* OE *cēowan,* OHG *kiuwan* 'chew'.
   Lith. *žiáunos* 'jawbone' gives uncertain evidence.
7. OHG *sou, souwes,* OE *sēaw,* OIcel. *söggr* 'something damp'.
   Gk. ὕει 'it is raining', Lat. *sūgō* 'suck' give uncertain evidence.
8. OHG *spriu,* pl. *spriuuuer* 'chaff'.
   Lith. *spráudžiu, spráusti* 'force in' gives uncertain evidence.

-aww- < *-awX-*:

1. OIcel. *hǫggua, hió* (ONorw. *hiogga*), *hioggom, hǫgg(u)enn* 'hew', OE *hēawan,* OS *hauwan,* OHG *houwan.*
   See Lith. *káuju, káuti* 'strike'.

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[2] For bibliography, more complete data, and an attempted explanation, see *PIEP* 36–46.

2. OIcel. *rǫgg, rǫggr* 'long coarse wool', Swed. *rugg* 'shaggy hair', OE *rēow* 'wild' OHG *rouaz* 'crude'.
   See Lith. *ráuju, ráuti* 'tear out', OS *rūwi* 'rough hide'.
3. OE *scēawian*, OS *skauwon*, OHG *scauwōn* 'gaze'.
   See Gk. κοέω 'perceive', Lat. *cauēre* 'take heed'.
4. OIcel. *snøggr, snǫggr* 'clipped, bare'.
   See Lat. *nouācula* 'razor', Gk. ξύω 'shave'.
   (Cognates in other dialects indefinite or uncertain.)
5. OIcel. *dǫgg, dǫggvar*, OE *dēaw*, OHG *tou, touues* 'dew'.
   See Skt. *dhavate* 'runs', Gk. θέω 'run', θοός 'rapid'.
6. Goth. *glaggwo, glaggwaba* 'carefully', OIcel. *glǫggr* 'strict', OE *glēaw*, OS *glauuuoro*, OHG *glauwēr* 'wise'.
7. OIcel. *hnǫggua*, pret. ptc. *hnuggen* 'push'.
   OIcel. *hnøggr*, OE *hnēaw* 'stingy', MHG *nouwe* 'hardly'.
   See Gk. κνύω, Latv. *knūdu* 'scratch'.
8. OS *tou*, OFris. *touw, tow* 'rope'.
   See Skt. *dūrá-* 'distant'.
9. OE *ðēaw*, OS *thau* 'custom', OHG *kathau* 'discipline'.
   See Lat. *tueor* 'protect'.

-uww- < *-uwX-*:

Goth. *skuggwa* 'mirror'; OIcel. *skugge*, OE *scua*, OHG *scuuo* 'shadow'.
See Skt. *skunāti* 'covers', OHG *skūr* 'protection'.

-ayy- < *-ayX-*:

1. OE *clæġ*, OWFris. *clay* 'clay'.
   See OIr. *glenaid*, Welsh *glynaf* 'adhere'.
2. OHG *screi, screige* 'cry';
   OHG pret. sg. *screi* of *scrīan* 'cry'
   See Gk. κρῑγή 'gnashing' and OIcel *hríka* 'gnash'.
3. Goth. *-waddjus*, OIcel. *veggr* 'wall'.
   See Lith. *výti* 'turn', Lat. *uiēre* 'bind'.

-ayy- < *-aXy-*:

4. Crim. Goth. *ada* 'egg', OIcel. *egg*, OS *eiiero*, OHG dat. sg. *eiie*.
   See Gk. ᾠόν, Lat. *ōuum* 'egg'.
5. Goth. *daddjan*, OSwed. *deggia* 'suckle'.
   See Skt. *dhītá-* 'sucked', Gk. θῆσθαι, OHG *tāju* 'suck'.
6. OHG *hei* 'dry', *gihei* 'heat'.
   See Lith. *kaistù* 'become hot'.
7. MHG *heie* 'hammer', MLG *heien* 'strike'.
   See Skt. *khidáti* 'tears', Lat. *caedō* 'strike'.
8. OIcel. *skeggia* 'ax'.
   See MIr. *scian* 'knife', Lith. *skíesti* 'separate'.

9. OSwed. *þrægge*, gen. sg. *þræggia* 'covering'.
   See Skt. *trā́yate* 'protects', Lat. *intrāre* 'enter'.
10. Goth. gen. pl. *twaddjē*, OIcel. *tueggia*, OE *twēġ(ẹ)a*, OHG *zwei(i)o*.
    Presumably by analogy, OIcel. *beggia* 'of both', OIcel. *þriggia* 'of three', but Goth. *þrijē*.
    See Lith. gen. *dvejų̃*; exact relationship complex.

-iyy- < *-iyX-*:

1. OIcel. *Frigg* PN, OHG *friia*, OS *frī* 'wife'.
   See Skt. *prīṇā́ti* 'is pleased'.
2. Goth. *iddja*, OE *ēode* 'went'.
   Relationship to PIE root uncertain. See also W. Cowgill, *Lg.* 36.483–501.

Germanic forms with undetermined etymologies:

OSwed. *gnugga* 'scrape'.
OIcel. *gugna* 'lose courage', *gyggua* 'scare'.
OIcel. *styggua* 'irritate'.
OIcel. *gnegg* 'neighing', *gneggja* 'whinny', OE *hnǣgan*, OS *tōnēhjan*.
OE *hwæġ* 'whey'.
OHG *hwaijōn*, *hwaiiot*, *uueigot* 'neigh'.
OE *cæġ*, OEFris. *kei* 'key'.
OS *leia* 'rock', OHG *leige* 'on the way'.

Conclusion: PGmc. *-w-* was lengthened after short vowels when reflex of a laryngeal followed *-w-*;

PGmc. *-j-* was lengthened after *i* when reflex of a laryngeal followed *-j-*, and after *a* when reflex of a laryngeal preceded or followed *-j-*.

2.2 A second set of forms, which Austin was the first to associate with the laryngeal theory, is a small list of words assembled by Bugge, in which PGmc. *k* and *g* correspond to pre-Gmc. *w*.[3]

Examples are as follows:

Gmc. *-g-* < PIE *-w-*:

1. OIcel. *bryggia* 'pier', OE *bryċġ*, OS *bruggia*, OHG *brucca* 'bridge'.
   See Skt. *bhrū́-*, Gk. ὀφρῦς, OE *brū* 'brow'.
2. OE *iuġuð*, OS *juguð*, OHG *jugund* 'youth'.
   See Skt. *yúvā*, gen. *yūnas*, Lat. *iuuenis* 'youth'; Gk. αἰζηός 'vigorous'.
3. OSwed. *mygg*, OE *muġġia*, OS *muggia*, MHG *mucke* 'mosquito'.
   See Gk. μυῖα.
4. Gothic rune name *sugil*, OE *syġel* 'sun'.
   See Dor. Gk. ἀέλιος, Skt. *súvar*, gen. *sū́ras*.

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[3] See *PIEP* 47–52. In his last article on the subject, *Language* 34.203–11, Austin assumes a PGmc. /q/, a reflex of the laryngeals. The sequence of development according to him is: IE *hy*, *hw* > PGmc. *qy*, *qw* > NGmc. *ˊk-*, *-ggyˊ*, *-ggwˊ*; WGmc. *ˊk-*, *-iyˊ*, *-uwˊ*; EGmc. *-Ø*, *-ggyˊ*, *-ggwˊ* (*ggy* > '*ddj*'). See below footnote 5 for a further comment on this view.

5. OE *suġu* ‘pig, sow’.
   See Gk. ὗς, Lat. *sūs*.

Gmc. -*k*- < PIE -*w*-:

1. OE *haccian*, OFris *tohakia*, MHG *hacken* ‘hack’.
   See Lith. *káuti* ‘strike’, OCS *kovati* ‘hammer’; also OIcel. *hǫggua*, OE *hēawan* in 2.1 above. We must posit PIE *keX*-*w*-, which was further suffixed.
2. OIcel. *leka* ‘trickle’; OE *leccan*, NE *leach*.
   See Lat. *lāuit* ‘washed’, Hitt. *la-aḫ-ḫu-un* ‘poured’.
3. OIcel. *nǫkkue*, OE *naca*, OS *naco*, OHG *nahho* ‘boat’.
   See Skt. *náuḥ*, acc. *nā́vam*, Lat. *nāuis* ‘boat’.
4. OIcel. *kuikr*, OE *cwic*, *cwicu*, OHG *quec* ‘alive’.
   OIcel. *kueikja* ‘make alive’.
   See Skt. *jīvá*-, Lat. *uīuus*, OCS *živъ* ‘alive’, Gk. ζώω ‘live’.
5. OIcel. *skeika* ‘swerve’.
   See Gk. σκαι(ϝ)ός, Lat. *scaeuus* ‘left’.
6. OS *spēkaldra*, OHG *speichaltra*, OHG *speihhila* ‘spit’.
   See Skt. *ṣṭhī́vati*, Gk. πτῡ́ω ‘spit’.
7. OIcel. *spik*, OE *spic*, OHG *spec* ‘fat’.
   See Skt. *pī́van*-, Gk. πῑ́ων ‘fat’; Skt. *sphāyate* ‘grows fat’.
8. OIcel. *stakkr* ‘haystack’; OE *staca*, NE *stake*.
   Austin (*Lg*. 34.205, 207) proposes a derivation from PIE *stah*-(*y*)-.
9. OE *tācor*, OHG *zeichur* ‘brother-in-law’.
   See Skt. *devṛ́*-, Gk. δαήρ, Lat. *lēuir* ‘brother-in-law’.

The precise conditions for the two developments have yet to be determined. In *PIEP* 52, I tentatively ascribed the difference in development to Gmc. *g* or *k* to differences in laryngeals.

2.3 Other Germanic data are not so widely related to the Proto-Indo-European laryngeals; see *PIEP* 53–73. They are otherwise unexplained reflexes of Indo-European resonants, or they are contiguous vowels.

One set includes unexpected vowels after resonants:

Examples are, after *r*, *l*, *m*, *n*:

1. OHG *birihha* ‘birch’.
   See Skt. *bhūrja*-, Lith. *béržas* ‘birch’.
2. OE *hærfest* < **harubist* ‘autumn’.
   See Gk. κρώπιον ‘sickle’.
3. OE *hærðan* < **haruþjan* ‘scrotum’.
   From the same root as *hærfest*.
4. OHG *hiruz*, OE *heorot* ‘deer’.
   See Gk. κέρας ‘horn’, κεραός ‘horned’.
5. OHG *muruwi*, *marawi*, OE *mearu* ‘tender’.
   See Skt. *mūrṇá*- ‘crushed’, Skt. *mṛṇā́ti* ‘crushes’.

6. OHG *halam* 'blade of grass'.
   See Gk. κάλαμος 'reed', SCr. *slàma* 'straw'.
7. OE *hælfter* < **hæluftri* 'bridle'.
   See Lith. *kálpa* 'crosspiece on a sled'.
8. OHG *skiluf*, *skilaf* 'reed', from the same root as *hælfter*.
9. OHG *demar* 'dusk'.
   See Skt. *támisrā* 'darkness', Lith. *témti* 'get dark'.
10. OHG *emiz*, *emazzi* 'busy'.
    See Skt. *amīti* 'oppresses', Gk. ὁμοίιος 'oppressing'.
11. OHG *anut*, OS *anad* 'duck'.
    See Skt. *ātí-* 'a water-bird'.
12. OS *wanum*, *wanam* 'splendid'.
    See Skt. *vāná-* 'dear', Skt. *vanóti* 'loves'.

We may assume tentatively that in these words a vowel was preserved, or later introduced, between resonant and laryngeal.

2.4 Another set shows Germanic long close *ē* ($\bar{e}^2$) in the neighborhood of PIE *y*.

Examples are:

1. Goth. *fēra*, OHG *fiara* 'side'.
   See Skt. *sphāra-* 'wide', *sphāyate* 'becomes fat', *sphīta-* 'wide'.
2. MHG *Kriemhilt*, PN.
   See OIcel. *gríma* 'mask', Gk. χρῑ́ω 'anoint'.
3. MHG *schief* 'crooked'.
   See OIcel. *skeika* 'swerve', Gk. σκαι(ϝ)ός 'left'.
4. OHG *skēri*, *skiaro* 'clear'.
   See MIr. *scian* 'knife', OIcel. *skeggia* 'ax'.
5. OHG *stiega* 'step'.
   See Gk. στείχω 'stride', OHG *stīgan* 'ascend', Lat. *uestīgium* 'trace, step'.
6. OHG *wiara* 'gold wire'.
   OIcel. *vēl* 'artifice', OE *Wēland*, Germ. *Wieland.*
   See Skt. *ẏāna-* 'weaving', pret. ptc. *ūta-* 'woven', OE *wīr* 'wire', *wīl* 'trick'.
7. OHG *ziari* 'ornamental'.
   See Skt. *ádīdet* 'shone', Skt. *dyáuḥ*, Gk. Ζεύς.

It is further assumed that the $\bar{e}^2$ of many seventh-class strong verbs developed from a sequence *-eXy-*. Cognates of such verbs give evidence for laryngeal, e.g.

> OE *scādan*, OHG *sceidan* 'separate' is cognate with OHG *skēri* (4 above) and OIcel. *skeggia* (cf. 2.1.8).

The source of the distinctive vowel in the seventh class preterite is however one of the most widely disputed problems in Germanic linguistics; proposed explanations cannot be discussed here.

By the hypothesis suggested above many instances of PGmc. $\bar{e}^2$ would have their origin in a sequence *-eXy-*.

2.5 Another set shows different reflexes of pre-Germanic initial *y* in the Alemannic dialect of Old High German.

In two well-attested words Alemannic has no direct reflex of such *y*:
Alem. *enēr* 'that'; see Skt. *yáḥ*, Gk. ὅς 'who'.
Alem. *āmar* 'suffering'; see Gk. ἥμερος 'tame'.

In three others Alemannic has *j-*.

Alem. *jehan* 'say' and *jetan* 'uproot' have no certain cognates, but *jesan* 'ferment' is cognate with Gk. ζέω 'seethe'.

Although the number of examples is very small, in those for which we can demonstrate cognates the lack of *j-* corresponds to Proto-Indo-European sequences of voiceless laryngeal plus *y*; *jesan*, like OHG *joh* 'yoke' has cognates which attest voiced laryngeal plus *y*.

2.6 Another small set of preterite forms contains an *r* in Old High German, which has been proposed as a reflex of an Indo-European laryngeal. This hypothesis has been generally received with scepticism, partly because it was universally held that the Germanic *r* was articulated with the tip of the tongue. There has been increasing evidence, provided by Moulton and Penzl, that uvular articulation was also possible for early Germanic *r*. If so, the assumption of an *r*-reflex of Proto-Indo-European laryngeals may not be wholly unlikely.

Examples are:

1. *biruun* 3d pl. ind., *biruuuis* 2d sg. subj., of *būan*; cf. 2.1.1. above.
2. *pleruzzun* 3d pl. ind., *capleruzzi* 3d sg. subj., of *bluozan* 'offer'.
3. *kiscrerot* 3d sg. ind. of *scrōtan* 'cut'.
   See Lat. *scrūtor* 'examine', Skt. *kṛṇāti* 'harms'.
4. *anasteroz* 3d sg. ind., *anasterozun* 3d pl. ind. of *stōzan* 'push'.
   Probably from PIE *steh-* 'stand'.
5. *pespiren* pret. ptc. of *spīwan* 'spit'.
   See Skt. *ṣṭhī́vati* and 2.2.6 above.
6. *scrirun* 3d pl. ind., *scriri* 2d sg. subj., *erscrirena* pret. ptc. of *scrīan* 'cry'.
   See Lat. *crīmen* 'charge'.

If the *r* are reflexes of laryngeals, laryngeals must have been maintained in the neighborhood of *-w-* [1–4] and *-y-* [5–6] until they coincided with PGmc. *r*.

Without summarizing the arguments for or against the assumption of laryngeals as the source of aberrant phenomena in these last sets of Germanic forms, we may observe that in all of them we are dealing with phenomena in the neighborhood of resonants. We may also note that this assumption on the origin of some close $\bar{e}$ is supported by Prokosch's analysis of strong verb preterites of the sixth and seventh classes, which was made purely on morphological evidence; see his *Comparative Germanic Grammar*, 175–82 (Philadelphia, 1939).

2.7 In other environments, in which we might expect reflexes of laryngeals on the basis of data in other dialects, Germanic offers no materials indicating reflexes of them. Unlike other dialects, Germanic does not present any evidence for laryngeals in the neighborhood of obstruents. Cognates of forms which have voiceless aspirates in Sanskrit have voiceless fricatives in Germanic.[4] As in all the other dialects, special reflexes of laryngeals are not attested in the neighborhood of vowels; presumably they had been lost between Proto-Indo-European vowels and consonants already in the Proto-Indo-European period, with compensatory lengthening of short vowels and PIE [i u]. Between consonants and the vocalic allophones of the resonants /r l m n/, however, there is no compensatory lengthening in Germanic upon their loss. Finally, we may note that laryngeals left no reflexes in Germanic which were not also reflexes of other Proto-Indo-European phonemes.

3. If we accept any of the enumerated Germanic phenomena as reflexes of laryngeals, we must account for their development. We must decide whether to reconstruct in pre-Germanic distinct reflexes of laryngeals, or laryngeals themselves, and note their allophones. We must also present a plausible explanation of the development of the laryngeals to the reflexes we find in Germanic. Moreover, we must examine the attempts to account for these phenomena through hypotheses other than the laryngeal theory, both in the past and by contemporary scholars. Of the various approaches I will discuss only three of those we find among Germanic scholars and Indo-Europeanists.

3.1 By one approach the reflexes of the laryngeals in the Germanic dialects are ascribed to independent reflexes in Proto-Germanic, which are themselves derived from the hypothesized Proto-Indo-European laryngeals. Austin's articles follow this approach. In his attempt to explain the Holtzmann-law phenomena and the unexpected *k* for *w*, Austin posits a Proto-Germanic glottal stop /q/, as a reflex of the three voiceless laryngeals, and possibly by pattern congruity even of the voiced. The varied reflexes in the Germanic dialects he accounts for by assuming varied developments of the proposed Germanic glottal stop under varied accents. We are grateful to him for his wide reexamination of the data; yet his argument would be stronger if he disposed of previous attempted etymologies before ascribing the examples of *k* he cites to laryngeal reflexes. By a similar type of analysis Hammerich had earlier assumed a voiced laryngeal in Germanic and Indo-European, positing it generally for initial, pre-vocalic position. As support he cited the alliteration of any vowel with any other in Germanic verse.[5] The approach of Austin and Hammerich leads to the assumption of elements which may correspond to some reflexes of laryngeals, but it has the weakness of dealing with individual entities rather than the entire phonological system of Proto-Germanic, pre-Germanic or Proto-Indo-European.

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[4] Note however Chr. S. Stang's article, "A quoi correspond en germanique le *th* Sanscrit?", *NTS* 15.335–42 (1949). Professor Stang suggests that forms in which Gmc. *t* corresponds to Skt. *th*, such as the second singular preterite ending, e.g., Gothic *namt*, Skt. *véttha*, may be reflexes of PIE *t*, followed by one of the laryngeals; for in other forms Gmc. *þ*/*ð* corresponds to Skt. *th*, e.g. OHG *rad*, Skt. *ráthaḥ*.

3.2 By explaining through intra-systematic repatterning data which have been dealt with under the laryngeal theory, other linguists have reduced the extent to which laryngeals are posited to deal with puzzling phenomena. Of particular importance for Germanic is the treatment of $\bar{e}^2$ by van Coetsem. Rejecting a proposed explanation of the pertinent instances of $\bar{e}^2$ through compensatory lengthening upon loss of laryngeals, van Coetsem seeks its origin in processes of parallel development similar to those posited by Kuryłowicz (who, if one may judge from a brief footnote in *L'apophonie* 169, sees no evidence in Germanic for positing laryngeals). Van Coetsem assumes a parallelism between pre-Germanic *e eu ei*, and concludes that as *e* became *i* before high vowels and *i* became *e* before *a*, so *eu* developed the two variants *iu* and *eu*, and *ei* not only became raised to *ī*, as our handbooks generally assume, but also lowered to $\bar{e}^2$. Discussion of van Coetsem's attempts to account for Germanic $\bar{e}^2$ would be unduly long; here we are solely concerned with the technique of positing linguistic changes based on morphophonemic variations in another, similar pattern. As with Kuryłowicz' attempted explanations of Indo-European linguistic phenomena, one must credit van Coetsem's Germanic speakers with a great deal of linguistic perspicacity and virtuosity, much more than their descendants in historical eras. The most thorough examination of Kuryłowicz' views on analogy was made by his countryman, Mańczak.[6] It differs considerably from Kuryłowicz' not only in conclusions on the operation of analogy but also in its support through attested forms and changes. Analysis of the functioning of analogy in the eyes of our contemporaries may seem to be remote from the laryngeal theory; yet examination of van Coetsem's and Kuryłowicz' writings illustrate neatly that we must be aware of the general linguistic theory used by particular writers. Otherwise we will find ourselves presented with schemata which leave no room for even a pinch, let alone a fistful of laryngeals.

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[5] *Laryngeal before Sonant*, esp. 33, 70–71. – Other explanations have been given for this metrical practice; see my *The Alliteration of Old Saxon Poetry* (*NTS*, *Supplement bind* III) (Oslo, 1953), pp. 18–22, where I regard metrical convention a more plausible explanation than phonological pairing. – Germanic scholars will wish to examine Austin's proposed evidence for themselves. As an example of the objection raised here we may note that *brook*, for which Austin proposed a new etymology, as well as other words given in his recent article, is differently explained in the standard etymological dictionaries, as in Kluge's *Etymologisches Wörterbuch der deutschen Sprache* under *Bruch*; see also *dick*, *Glück*, *Schlick* and others. No such words have been included here, in keeping with the procedure that proposed etymologies cannot gain credence until previous etymologies are demonstrated to be inadequate.

[6] For Van Coetsem's views on the origin of $\bar{e}^2$, see the third chapter of his monograph, "Das System der starken Verba und die Periodisierung im älteren Germanischen", *Mededelingen der koninklijke nederlandse Akademie van Wetenschappen, afd. Letterkunde, Nieuwe reeks*, deel 19, No. 1 (Amsterdam, 1956). – In the introduction to *L'apophonie en indo-européen* (Wrocław, 1956), Kuryłowicz reviews his statements which he had presented in *Acta Linguistica* 5.15–37 (1945–49). W. Mańczak deals with analogical change in two long articles in *Lingua* 7 (1958), discussing the views of Kuryłowicz especially pp. 417–20.

4. If we admit laryngeals for Indo-European, one of the fundamental contributions is that made by Sapir in his article "Glottalized Continuants in Navaho, Nootka, and Kwakiutl (with a note on Indo-European)," *Language* 14.248–74 (1938). After extensive analysis of the glottalized continuants in these three Indian languages, Sapir concluded that they "go back to coalescences of ʔ or *h* with following or preceding *y*, *w*, *m*, *n*, *l* . . .". He went on to make the general statement that "a relatively weak consonantal phoneme, instead of disappearing entirely when in a cluster with a sonorant consonant, is absorbed by the latter, so that new consonantal phonemes emerge". [268] He thereupon applied this statement to "Indo-European phonological developments". Positing four laryngeals for Indo-European, which clustered with the resonants, he asserted [270] that "it will undoubtedly prove far more economical of effort to assume little or nothing in the way of sweeping reductions of these, to us, uncomfortable clusters and to keep our eyes open for distinctive reflexes of them in the IE dialects . . .".

In my opinion Sapir's article of 1938 still provides the soundest approach to a treatment of the reflexes of the laryngeals. It recognizes laryngeals as phonological entities and deals with their functioning in a phonological system; it also provides excellent parallels in languages which have maintained laryngeals or their reflexes much as did the early Indo-European dialects. I propose then that following Sapir we look for absorption or modification phenomena in Germanic, and in the other Indo-European dialects, determine the earlier forms of these and compare materials in all of the dialects. An example of absorption is Germanic $\bar{e}^{2}$, which is also a reflex of pre-Germanic vowel plus *z*. An example of modification is lengthened *w* and *y* in the West Germanic dialects.

4.1. Besides treating the reflexes of laryngeals as absorption or modification phenomena, we may compare the Germanic treatment of their reflexes with other Germanic absorption phenomena, such as the so-called West Germanic lengthening of consonants. It is generally held that Proto-Indo-European and pre-Germanic had few lengthened consonants or even medial consonant clusters. We have various kinds of evidence for positing open syllables for pre-Germanic and even Proto-Germanic. The Germanic dialects on the other hand contain numerous lengthened consonants, with resultant closed syllables, notably the West Germanic dialects. It is precisely this subdivision of Germanic in which *w* and *y* remained as lengthened consonants, as opposed to the North and East Germanic dialects in which a stop developed before them. We observe then a close correlation between patterns in which we posit some reflexes of laryngeals and the structural systems of the various Germanic dialects.

Moreover, study of the reflexes of laryngeals in contact with consonants and the results of the West Germanic consonant lengthening may help us in clarifying the mechanism of the lengthening, which to the present has remained obscure. One of the chief points of dispute has been the position of intersyllabic juncture before the lengthening. Sievers posited PGmc. *ta-lya*, Kauffmann, Kluge and Walde *tal-ya*; see W. Wilmanns, *Deutsche Grammatik* I^3.188 (Strassburg, 1911). By comparing the West Germanic reflexes of vowel plus *w* or *y* which were lengthened as opposed to those which were not, we may clarify the linguistic events. As an instance of *w* without lengthening we may cite Gothic *awistr* 'sheepfold'; we find in Old High German texts Bavarian *ouuist*, Alemannic and Franconian *ewist*, *ewit* which with their umlauted form of *a* show that the syllabic break came before the *w*. We may conclude that lengthening, both before reflex of laryngeal and resonants, involved a modification of the syllable such that the lengthened consonant was included in the preceding syllable as well as in its original syllable.

In this way we may use the laryngeal theory diagnostically. Examining the reflexes of the laryngeals when they have coincided with reflexes of other phonemes gives us perspectives to get a clearer analysis of earlier linguistic forms. Just as two sets of forms, such as the Germanic borrowings from Latin at the beginning of our era or the Japanese borrowings from Chinese half a millennium later, provide us with cross-checks for our analysis of both languages, so may two phonological patterns in their coalescence provide us with a clearer analysis of the previous phonological system. Accordingly the laryngeal theory may be capable of further exploitation for our understanding of the inner development of the early dialects and Germanic as well as of other previously unexplained phenomena.

4.2 Analysis of the Germanic phenomena also demonstrates the need of working with a carefully defined phonological structure for Proto-Indo-European. Unless one is aware that the Proto-Indo-European verbal root consisted of two consonants, to which suffixes circumscribed in form may be added, he may undertake hypotheses which cannot be demonstrated. An example may be given with Goth. *iddja*. This is related to a root formerly constructed *i*, but which we now posit as *ʔy-*. From many derived forms, e.g. the Skt. *yā-*, we know that laryngeal suffixes were added to this root. Without identifying the two laryngeals we could therefore write the root with suffix *XyX-*. Since the reflex of PIE *-y-* underwent lengthening in Germanic both when preceded and followed by laryngeal, it is difficult to insist on one etymon in attempting to explain *iddja*. Unless further evidence for laryngeals is produced, such problems will remain without precise solutions.

One advantage of working with carefully defined units is that they help us in determining when problems are incapable of solution. The Sanskrit infinitive *bhávitum* 'be' provides adequate evidence to posit a laryngeal suffix for the Proto-Indo-European root *bhew-*. It would be attractive to define the laryngeal, for then we might be able to provide a more precise explanation of the phonological developments in forms like OIcel. *bygg*. Yet as handbooks of the past inform us by positing the two suffixes for *bhew-*, *-ē-* and *-ā-*, the root admitted suffixes with at least two of the laryngeals, if not three, *ʔ h x*. Such wealth of suffixation is by no means surprising, for we find similar profusion of obstruents after Proto-Indo-European roots structured like *bhew-*; yet it keeps us from making precise statements about extended forms of *bhew-* and other roots. It should also caution us about the impossibility of attempting to make such precise statements.

Only through painstaking scrutiny of possible evidence in all the dialects, such as that presented in this collection, conducted within a carefully defined structural framework of Proto-Indo-European, will we advance in our understanding of Proto-Indo-European phonology.

EVIDENCE IN KELTIC

ERIC P. HAMP

1. There are numerous supporting equations in Keltic for forms that elsewhere in IE are important for the positing of laryngeals. But there is no point in discussing them here, since they are equally well explained, in Keltic terms, on the basis of Brugmann's phones with a minimum of morphophonemic complexity.

So, for example, Welsh *asgwrn* 'bone' may be reconstructed as **ast-* < **əst-*, against **yost-* elsewhere, much as Armenian *akn* may be **ək*^{w}-. N. Holmer, *Études celtiques* 3.79, 1938, does not really explain the vocalism, and only confuses the issue by pairing this with diverse other phenomena.

Likewise, **dr* has been assumed not to lenite (Thurneysen [= Th] § 119), though sure examples are lacking. Then, just as OIr. *bodar*, W. *byddar* 'deaf' are from **budaros*, so *odar* 'grey-brown' (related to *otter*) (: Gk. ὑδαρής) should go back to **udaros*. Thus, we posit alongside the familiar *-ro-* suffix (W. *hir* 'long', *hwy* 'longer'), a distinct **-əro-*; whether this matches laryngeal reflexes elsewhere (as Skt. *rudhi-rá-*), or is an analogical detachment from laryngeal bases (as Skt. *aj-irá-*), is another question.

2. I know of no dramatic problems of consonantism that laryngeals clearly solve. The main riddles in Keltic are those illustrated by the fate of **st-* and the initial of *tengae*, *tafod* 'tongue'. I have ideas on the last, but there are no laryngeals involved.

On the basis of pattern, I have suggested (*Lochlann* 1, 217, 1958) that the Proto-Keltic consonants might have looked as follows:[1]

d	g	b	or	d	g	b	s
t	k	k^w		t	k	k^w	
s	h	φ		θ	h	φ	

φ would be a reflex of certain instances of IE **p*; θ would perhaps be **st-*. *h* is pure invention (see below). If so, the laryngeal(s) would be structural spirants in Proto-Keltic.

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[1] Warren Cowgill points out the possibility that IE *g^wh > *g^w in Proto-Keltic, which would then leave **b* unopposed as long as *k^w remained *[kw]. I do not want to preclude this possibility, but on the basis of the vexed evidence I stick to my earlier formulation and present my reasons elsewhere.

3. As I have remarked (*BBCS* 17, 36, 1956), we must tentatively posit a sixth vowel /ъ/ for Proto-Keltic.[2] This would take care at least of the syllabic nasals exemplified by OIr. *imb* and Bret. *amann* 'butter', and it may also explain

> OIr. *hícc* 'cure', W. *iach* 'healthy', Gk. ἄκος 'remedy', Skt. *yaśas* 'splendor'
> OIr. *híth*, Med. W. *iwt* 'porridge', Skt. *prayauti* 'stirs, mixes'

which show laryngeal phenomena (or schwa) elsewhere in IE. If so, we have /iъkk-/ and /iъut-/. Probably OIr. *icht* 'race, people' shows zero-grade to W. *ieith* 'language'. OW. *iüð* 'lord' is a problem that I cannot see through at present (see *LHEB* 345–7). The base for 'jealousy, longing' shows both nasal and non-nasal shapes, as it would appear: OIr. *ét*, W. *addiant*, Gaul. *Iantumarus*, *Ientu-* (**jъnt-* or **jant-*, perhaps ~ **jent-*); W. *addiad*, Gaul. *Adiatunnus*, *Adietuanus*, Skt. *yátate* (**jVt-*).

Otherwise, Proto-Keltic shows the five familiar vowels.

4. It is easy to demonstrate formally that Keltic had a phrase-juncture /$^+$/. I have so stated it for compounds (*Études celtiques* 6, 284, 1954). If we take OIr. *fecht n-aill* and Breton *guechall* 'autrefois' we may recover a whole phrase **wekton*$^+$*alli*$^+$.

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[2] Warren Cowgill has suggested to me that IE **m̥ n̥* gave Proto-Keltic **am an* throughout, and that in Irish **am an* then fell in with **em en* under conditions depending on the following consonant and vowel when an obstruent followed; analogies would by this argument later have blurred the picture. This line of reasoning is very attractive and would in welcome fashion eliminate the need for positing */ъ/. – The range of forms which could show distinctive reflexes is in any event slender: Before spirants, resonants, and laryngeals the IE syllabic nasals would have given an **a* vocalism as early as Proto-Keltic (see §5 below); before voiceless stops original syllabic nasals are indistinguishable from **a* plus nasal (*cét* '100' < **ḱmtóm* : *cétal* 'song' < **kantlom*). Therefore, it is only before voiced stops that we may hope to see distinct reflexes, and the number of sure etyma with European (or IE) **a* is understandably meager. – A further argument of patterning makes the assumption of a change from **a* to **e* before nasal plus stop easily credible: We must bear in mind that after the common Keltic merger of **e* with **i* before such nasal clusters there was probably no opposition of **a* ≠ **e* in this position; therefore earlier **a* was here free to move phonetically to *[e] and eventually (after vowel affection) to follow the fate of **e* as OIr. *e* and *i*. - If we allow for a putative conditioning effect on **am an* by the following vowel, it is possible to explain such forms as *imb*, *bind*, *indile*, and even the privative *in-* before initial *d- g-* (if we regard it as a levelling out to the disadvantage of other following vocalisms) as the result of raising by the following palatal syllabic. So, too, *in·greinn* 'persecutes' (: Lat. *gradior*) and *scend-* 'leap' (: Lat. *scandō*, but contrast Welsh *cy-chwynnu* 'rise' with clear **i* < **e*) could be regarded equally as showing old **a* (see Kuryłowicz, *Apophonie* 174–87). – But still we are left with some striking contrasts which show apparent correlation with IE cognates in other branches or with other types of evidence. Thus before a following **ā* (cf. Welsh *tafawt*) we nevertheless find a palatal vocalism in *tengae* 'tongue', while there is no trace of palatality in *cumung* 'narrow', presumably < **komangus* : Gk. ἄγχω. (It should be noted that Welsh *cyfyng*, *yng*, Bret. *enk* < **kom*$^+$*Vng-* make for difficulty with their vocalism, though Welsh *ehang* 'wide' < **eks*$^+$*ang-* shows a clear **a*.) Again, while *imb* 'butter' (admittedly with an old palatal following: **ъmbъn*, gen. *imbe* < **ъmbens*, dat. *imbimm* apparently < **ъmbemmi* perhaps < **ng*^{w}*enmi* with assimilation of **nm* in *-men-* stems, cf. Lith. instr. *akmenimí*, OLith. *wandemi*, perhaps OE *þæm* OCS *těmь* < **toi-mi*) matches a palatal vocalism with IE **n̥*, *camb* 'crooked' reflects **kambos* (: Gk. σκαμβός, cf. below p. 226). Finally, we find a contrast without clear conditioning in *grend* 'beard, whisker' beside *lann* 'church land', *ith-land* 'threshing-floor' (: OCorn. *itlann* 'area'; v. RIA Contribb., letter I, 327–8), and again beside *ainder* 'young woman' (: Welsh *anner* 'heifer'). – Thus, for the present, it seems safer to operate with */ъ/.

It is clear, too, that Keltic often had /$^{+}$/ after a compounded "preposition" in substantive compounds; see my note on W. _anian_, _BBCS_ 16, 279 (1956). This explanation likewise applies to _*ro_$^{+}$-, _*to_$^{+}$-, _*so_$^{+}$-, _*kom_$^{+}$-, _*tre:_$^{+}$- discussed by Jackson _LHEB_ 658–9.

On this basis the following anomalies are then explained: OIr. _fén_, W. _gwain_ 'wagon' < _*wegn-_; W. _gweini_ 'serve' < _*wogni:ma:_ (see _LHEB_ 436); but, OIr. _fognam_ 'serve', Co. _gonys_ 'work', Br. _gounid_ 'gain' < _*wo_$^{+}$_gn-_. It is possible, for this example, that the Irish form may be a later compound with consonant quality analogous on _gním_, since we do not have _*fognum_; cf. _dénum_ 'doing' (Th. § 170b). But on the other hand, note _imm(f̂)ognom_ 'construction'. Thurneysen's treatment (§ 201) of the following types is unsatisfactory: OIr. _banb_, W. _banw_ 'suckling pig' and OIr. _anbsud_ 'unstable' show _*nw_; OIr. _cobsud_ 'firm' (: _fossad_), W. _cyngwastad_ 'equable' are from _*kon_$^{+}$_wostat-_; OIr. _co(i)bled_ 'feast' (: _fled_, W. _gwledd_) is from _*kón_$^{+}$_wled-_. This contrast is not to be confused with the Proto-Keltic morphophonemically related allomorph _*ko-_, seen in OIr. _coir_, W. _cywir_, Gaul. _Couirus_ < _*kowi:ros_.

Now we may consider some unexpected OIr. consonant qualities, for which no laryngeal magic is needed, but which bother Thurneysen (§ 166). _amaires_ 'unbelief' is related to _ar·sissedar_, vn. _erissem_ 'stays, stops', and the Armenian (loan from Iranian) _amparišt_ 'irreligioso'. I reconstruct _*am_$^{+}$_eristV-_; regarding the IE sequence _*mp_, I must note that I consider _camb_ 'crooked' better related to Gk. σκαμβός, if to anything, than to καμπή. Similarly, _anecne_ 'unwise' and _anirlithe_ 'disobedient' (with broad _n_) are from _*an_$^{+}$_V-_ ≠ _ainb_ 'ignorant' < _*anwid-_ (see _banb_ above). W. _afrwydd_ could be _*am_$^{+}$_re:d-_, though _hyrwydd_ is surely _*so_$^{+}$_re:d-_. However, OIr. _amraid_ ought to be _*am_$^{+}$_r-_. This would then account for _soraid_ and _doraid_ as analogies; the fact that the comparative _soirthiu_ 'celerior' points to an original _*suret-_, not _*sure:d-_, makes this analogy all the more likely.

Presumably _sonairt_ (: _nert_) and _solus_ (: _lés_ 'light') are further analogies. It may be significant that these are before _l_ and _n_. (Welsh, too, shows the _af-_ allomorph before _l_, _r_, _n_; see Th. § 871).

In _carae_, beside acc. pl. _cairtea_, we expect _*ca(i)re_ < _*karēdd-_ < _*karant-_. But rather than a conceivable _*karAnt-_, I suspect we simply have an analogy; these broad-slender alternations become very pervasive in OIr.

5. It is worth noting separately here that IE _*r̥ l̥ n̥ m̥_ seem to have developed _a_ vocalism before old resonants and spirants (_s_):

OIr. _marb_, W. _marw_ 'dead' < _*marwos_
OIr. _banb_, W. _banw_ 'suckling pig' < _*banwos_[3]
OIr. _at-baill_ 'dies' < _*-g_^{w}_lne-_
OIr. _arco_, W. _archaf_ 'ask' < _*(p)rsḱō_
OIr. _tart_ 'thirst' < _*tarst-_ : Skt. _tṛṣṭá-_.

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[3] Likewise the Old Irish acc. pl. in _-a_ of old consonant stems represents _*-ans_ < _*-n̥s_, whereas we have a different result in the ending _-e_ < _*-ɛ:(t)s(s)_ < _*-ən(t)s(s)_ < _*n̥ts_ (Th. § 214).

These are dealt with at LP §§ 7.2 and 8.2 and Th. §§ 213–5. On the background of _frass_ 'rain', if it is _*wrasta:_, to Skt. _vṛṣṭá-_, see now Kuryłowicz, _Apophonie_ 175–6. The treatment is clearly the same before what I would call laryngeal (see below).

In light of this, _art_ 'bear' becomes interesting in a way I cannot recall having seen pointed out. I posit _*arstos_ < _*r(k)stos_ < _*rtskos_.[4] This seems to indicate, since W. _arth_ and Gaul. _Art-_ point to _*art-_, that the development of _*a_ under all these conditions was already Proto-Keltic.

It is worth noting that in these terms _*m_ does not count as a resonant (OIr. _cruim_, W. _pryf_ 'worm' < _*k_^{w}_rmis_), which may help to explain its later separate history in Keltic.

6. There is the set of problems surrounding Brugmann's long resonants, illustrated by OIr. _rann_, W. _rhan_ 'part', W. _taradr_ 'drill', W. _sarn_ 'causeway' (: Skt. _stīrṇá-_, Lat. _strātus_)[5] vs. OIr. _lán_, W. _llawn_ 'full'. But I see no more laryngeal action here than we already know about. _*rannā_ would be an additional example of the correlation with _-no-_ suffix mentioned by Kuryłowicz, _Apophonie_ 198. Moreover, Kuryłowicz (199–201) has certainly correctly identified the status and correlation of the _taradr_ and _llawn_ types, even though I am not yet sure of the exact mechanism of their genesis.

7. We must now consider the Sievers-Edgerton phenomena in Keltic very briefly. It is well known that Welsh shows in great quantity apparent reflexes of _*CijV_; Irish

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[4] Since drafting the above, I see from Burrow's discussion, _JAOS_ 79.88 (1959), that a proximate _*r̥stos_ may well also explain Lat. _ursus_, via _*urstos_ rather than _*urktos_. If so, this makes an interesting Italo-Keltic correspondence. – It is rather unlikely that the Keltic vocalism could come from a full grade with initial laryngeal; zero grade is well attested throughout IE. Avestan _arəša-_, OP _aršāma-_, Ossetic _ars_ (beside Pers. _xirs_, Shughni _yurṣ̌_, Yidgha _yarš_, Ormuri _ḫiṇs_, Parachi _uṭ_ – not _*uš_ as we might have expected; Yaghnobi has _xi̯rs_ from Tajik) show the regular development of Iranian _*r̥š_; see Hübschmann, _Persische Studien_ 143, and further parallels svv. _ard_ and _arc_, Abaev, _Istoriko-ètimologičeskij slovar' osetinskogo jazyka_, I (1958).

[5] For a detailed discussion of related forms see C. Watkins, _Ériu_ 18.85–101 (1958). However, I should consider _sarn_, _darn_, etc. as reflexes of simple short syllabic resonants (see § 5), or, at most, as rebuilt vocalisms from other environments or ablaut grades (see Kuryłowicz, _Apophonie_ 200, fn. 46) and not as a reflex of resonant plus laryngeal as does Watkins (101, fn. 4). – In fact, if I am correct in assuming that the normal result of _*r̥_ before resonant was _*ar_, there must have been systematic new alternations generated in Proto-Keltic in nasal-class verbs, and _sarn-_ would be the exact match of Skt. _stṛṇāti_ (see Watkins 90), while _ernaid_ 'bestows' and _tlen-_ 'remove', _ara·chrin_ 'decays', _do·lin_ 'flows' could represent two types of refashioning. Note that _tlen-_ probably did not have an old IE present (M-L. Sjoestedt, _L'aspect verbal et les formations à affixe nasal en celtique_, Paris 1926, 43) and that _ara·chrin_ has probably shifted class (cf. Skt. _śṛṇā́ti_; Th § 552). _do·lin_ could simply be _*li-_ (_IEW_ 664), or, if to Arm. _hełum_ (Sjoestedt, _op. cit._ 37), a cross (earlier _*len-_) with the expected alternant _*lan-_ (W. _llanw_ < _*(p)l̥n̥u̯-_) produced before _*u̯_ in nonsyllabic position. _renaid_ 'sells', traditionally compared with Gk. πέρνημι, might better be derived from _*rināti_ < _*rĕi-_ (_IEW_ 860). Then W. _dirwy_ 'fine' (OIr. _díre_) < _*-re:jon_ < _*-rĕi-_ would not need to be analogical (LP § 605), and we may return to Marstrander's position, against Thurneysen, _ZCP_ 16.273 (1926). – Secondly, I regard the alternation observed by Kuryłowicz (_Apophonie_ 172) for Skt. _ástṛta-_, etc. (see Watkins 99) as too widespread to be explained by Indo-Iranian phonologic development, and as belonging more probably to a limited IE morphophonemic interplay. Thus, although Skt. _dṛta-_ is late and Serbian _dȓt_ merely shows the regularized accent for this class of participle (see Leskien, _Gramm. der serbo-kroat. Sprache_ § 899), forms such as Vedic _dṛ́ti-_, Gk. δάρσις make a light base allomorph probable enough to provide a separate support for W. _darn_ as a proximate _*dr̥-no-_.

shows only a single treatment, which, if we work on analogies of syllabic structure with other sequences, looks like _*CjV_. Hence, for _-i̯o-_ stems, we have in Irish an ambiguous shred of vocalism, while Welsh shows _-ydd_, _-edd_. (Cornish and Breton agree fundamentally, but involve later complexities.) For many of these we must in any event assume analogical spread of one of the old alternants. But there are complexities of detail, apart from this, that we must at least by listing show to be solved or solveable, so that my later argument will stand out clearly.

The relevant subtypes are the following:

a) OW. _gaem_, W. _gaeaf_, Co. _goyf_, Bret. _goañv_ 'winter' < _*gijámo-_ (_LHEB_ 359); W. _cynhaeaf_ 'harvest' < _*kintu_$^+$_gijámo-_, but OCo. _kyniaf_ < _*kintu_($^+$)_gjamo-_, with the other postvocalic (non-postjunctural?) treatment. Similarly, W. _daear_, Bret. _douar_ 'ground' < _*dijár-_. That is, Proto-British _*ij_ followed by stressed _a_.

b) W. _diau_ 'days' < Proto-British _*dijówes_, this in turn from earlier _*dijéwes_ (_LHEB_ 360).

c) OIr. _scïan_, W. _ysgïen_ 'knife' is probably not from _*ski:jena:_, since that sequence seems represented by OIr. _cré_, W. _pridd_ 'clay' < _*k_^{w}_rí:jets_ (_LHEB_ 351). Rather, we seem to have, as Jackson apparently prefers (_LHEB_ 360), _*skijéna:_. This may ultimately be cognate with OIr. _scéith_, W. _chwydu_ 'vomit', though the initial is troublesome.[6] Presumably, ON _skíta_ (_*skey-d-_) and Goth. _skaidan_ (_*skey-dh-_) are in fact related; likewise Skt. _chinádmi_. But the slender evidence of Gk. σχίζω might perchance point to a laryngeal with its _kh_. Tentatively, I discount this. In any case, we seem to have Proto-British _*ij_ followed by stressed _e_. Yet if Watkins, _Ériu_ 18.97, 1958, is right, the syllabification of the OIrish offers difficulty, and may point to an old hiatus (juncture?).

d) When neither vowel of _*ijV_ was stressed, the result seems to agree (though the evidence its meager, v. _LHEB_ 360–2) with (b) and (c).

e) W. _newydd_, Co. _nowyth_, _newyth_, Bret. _nevez_ 'new' < _*nowíjo-_; W. _dydd_ 'day' < _*díjV-_ < _*dijēus_ (_LHEB_ 351). Thus, while OIr. _scé_ 'hawthorn' is ambiguous, W. _ysbyddad_, Bret. _spezad_ show _đ_ < _*sk_^{w}_íjat-_ (as the nom. would have had) even though these British forms are from an oblique case or a derived form _*sk_^{w}_ijátV-_.

f) The British plural and abstract suffixes _-i_ are opaque to me; see _LHEB_ 353.

g) OIr. _saithe_, W. _haid_ f. 'swarm' < _*satja:_ *'sowing'; OIr. _aile_, W. _eil_ 'other, second' < _*aljos_; OIr. _coire_, W. _pair_, Provençal _pairol_ (< Gaul. _*parjo-_) 'kettle' < _*k_^{w}_árjo-_.

h) OIr. _airim_, W. _arddaf_, _erddi_ 'I plough, ploughing' < _*arijómi_, _*arijí:ma:_; this variety, with following stress, is not entirely clear – see _LHEB_ 472–3 – but would seem to form a subtype to (e) and (b) above.[7]

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[6] I intend to deal elsewhere with this class of initial cluster.

[7] Cowgill has pointed out to me that the laryngeal cluster on the final of this base * _Aer X-_ conceivably caused a Sievers syllabification _*AerXiyo-_. It would therefore appear that, while the normal result of _*ríj_ is, as at (e) above, _-rydd-_ (Med. W. 2sg. _keryd_), original _*rijV_ syncopated early to give _-rdd-_. The pair _Iwerydd_ (personal name; see I. Williams, _Canu Llywarch Hen_ 183): _Iwerddon_ 'Ireland' is particularly instructive. A further supporting instance may well be _morddwyd_ 'thigh': OHG _muriot_ (see _VKG_ 1.70, Morris-Jones § 100. iii (2), WP II. 262); this would show a syllabification _*morijé:t-_ < _*morXi(eit-)_. The vocalized resonant of the Germanic form may substantiate the sequence as

In summary, Old Irish is ambiguous; not only are we unable to distinguish **Cj* from **Cij*, but even **Cj* from **Cej: suide* 'sitting' **sodjon*, and *ad·suidem* 'we hold fast' **sodejomo(s)*. British, however, enables us to distinguish them, but then without showing the original Sievers-Edgerton distribution. Vendryes has pointed out the morphological exploitation of this redistribution, *BSL* 47.1–10, 1951.

A similar, but slightly less perspicuous, account could be given of **Cw* and **Cuw*.

8. Now, indistinguishable from the above treatments we have, for example: OIr. *riathor* 'torrens', W. *rhaeadr* 'waterfall' < **rijátr-* or **rejátr-*; since this is to be related to Lat. *rīuus*, OE *rīþ*, we would ultimately have **riXatr-*, or **reiXtr-*. Again, there is W. *rhydd* < **ríjos* : Skt. *priyá-*, therefore **priXós*. Once the maze of British **j* has been worked through, laryngeals do no work for us here.[8]

There is perhaps an apparent case of contrastive hiatus in W. *rhyw* 'sort, kind' < **rios* < **rijos*, but I do not understand the conditions, nor the usual etymology; see *LHEB* 356–7.

9. Now we turn to the resonants other than **j* and **w*. There is quite a fair number of Keltic etyma, usually with *a* vocalism, which are traditionally treated as syllabic resonant before vowel. OIr. *scaraim*, W. *ysgar* 'separate', or OIr. *tan(a)e*, Corn. *tanow* 'thin' are such. It is convenient to take as a point of departure a fresh example; I choose for this purpose Welsh *cra(f)* 'wild garlic'.

The precise background of this word has long been a matter of doubt. The Greek doublet κρόμυον has been considered an assimilation product of the attested κρέμυον, which latter lives on today in the current (etymologically diminutive derivative) κρεμύδι. Welsh *craf* has been pronounced a "reduced grade" of the base seen elsewhere in Keltic in the shape of Mid. Ir. *crim*, *crem*, gen. *crema*, though the conditions generating this ablaut development have not to my knowledge been made plain in the Keltic literature. For the array of related forms and citation of earlier literature, see conveniently Pokorny, *IEW* 580–1; on purely Irish details of vocalism, see Thurneysen § 80c.

If we assume that the Irish forms continue a normal-grade **krem-*, the Welsh does indeed seem best accounted for as a development of zero-grade **krm-*, wherein the *m* developed as an [m̥] in prevocalic position. But from our knowledge of the general conditions under which the Indo-European sonants syllabified, a full accounting of

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**mrXi-*. Finally, on the famous Merlin we read in Loth (*Les Mabinogion* I.223, fn. 4), "Myrddin vient de Maridunum, ville des Demetae . . ."; but again (II.323, fn. 5) "Myrddin le barde est dit fils de Morvryn. Les Iolo mss. le font fils de Morydd . . ." Older spellings frequently show *Merddin*. If we make allowance for confusion with the place name *Caer Fyrddin* (Carmarthen), perhaps we may see in *Morydd* :*Merddin* the pair **moríj-* : **morijí:n-*.

[8] Assuming that the treatment of **ijV* after labials is, as stated by *LP* § 21.2 (and hence, I should say, as a subtype to (a) above), to be seen in OIr. *smér*, W. *mwyar* 'blackberries', we may further associate OIr. *bïáil*, W. *bwyall -ell* 'axe' < **bijalis* (or **bijaslis*, contaminated with *tál* 'adze'?) with *benaid* < **bhināti*, and reconstruct **bhiA-(l-)* or **bheiA-(l-)*.

the facts demands more than the mere assertion that **m* was here treated as syllabic. Why, for example, did not the **r* syllabify, and then the **m* develop consonantally as being at a syllabic border? In that case, we should have had **cryf*.

It is true that in absolute initial a cluster of consonant plus sonant syllabified, in at least some of the known etyma, in the fashion that Wackernagel (*AiGr.* 1. 11 and 28–9) and Edgerton (*Language* 19. 86–7, 108–9) have argued; this is the case of Sievers' Law. In the argument below it should be clearly understood that I do not propose that all cases of Sievers' Law be now revised to fall under the class of phenomena here discussed. Thus too we attribute the syllabification seen in OIr. *do·moiniur*, Skt. *mányate*, Av. *mainyeite*, Gk. μαίνομαι, OCS *mьnjǫ*, or in OIr. *marb*, W. *marw* (: Skt. *mriyáte*, Av. *miryeite*, Lat. *morior*, Skt. *amṛ́ta-*, Av. *aməša*, etc.) to simple trough position by Sievers-Edgerton rules.

It is also convenient to make plain at this point that I agree with Edgerton's general arguments regarding 'shwa secundum'. Petersen (*Language* 14. 39ff.) has argued well on the main contending situations that do not involve the syllabification of sonants. Kuryłowicz has more recently (*Apophonie* 176ff.) dealt perceptively and at length with the special place of analogical *a*-vocalisms. My argument below, while not infringing on Sievers' Law by claiming to replace it, furthermore has nothing at all to do with "shwa secundum".[9]

However, certain cases included in the standard handbooks under what is now Edgerton's revision of Sievers' Law seem prevailingly to show syllabification of the sonant in a fashion that makes one wonder whether alternation ever actually occurred in these particular forms. For example, Vedic *tanú-* 'thin', Gk. τανaός, OCS *tьnъkъ*, OHG *dunni* are matched by OIr. *tan(a)e*, Corn. *tanow* even though the initial cluster *tn-* is clearly permitted in historical Keltic (OIr. *tnúth*); nevertheless, this may of course be simply a continuation of one of the original IE allophonic alternants. Even more striking is the complete agreement in syllabification of Gk. ταλαός 'miserable', OCS *tьlo* 'ground', OIr. *talam* 'earth', W. *tâl* 'payment', where a scattering of *tl-* forms might surely be looked for. Likewise, OIr. *sam*, Welsh *haf*, OHG *sumar* 'summer' show remarkable agreement.

A few bases show clear and obvious alternation with seṭ forms: Breton, Cornish, Welsh *tal-* 'pay, worth' (v. Sir Ifor Williams *Canu Aneirin* 70) would seem to be cognate with Skt. *tulā́* 'Waage, Waagbalken', and thus, in turn, with the clearly seṭ forms Gk. τλῆναι, Doric ἔτλᾱν, τλᾱτός, Lat. *tollō*, *tulī*, *lātus*, Welsh *tlawd*. OIr. *il*, Goth. *filu* go back to an apparent **pélu*, but Skt. *purú*, Avest. *pouru-*, OPers. *paru-*, Gk. πολύ represent an apparent **pl̥ú*; these forms parallel morphologically Goth. *faihu*, Vedic *páśu*, Lat. *pecu*(*s*), OPruss. *pecku*, but Avest. *fšu-*. In turn, they cannot be separated from the widely attested seṭ family represented by Skt. *pṛṇā́ti*, *pūrṇá-*, Lith. *pìlnas*, Serb. *pȕn*, OIr. *lia*, *lān*, Armenian *li*, Albanian *plot* (**plē-*).

Even though the initial of Gk. πόλις, πτόλις still awaits a conclusive explanation, and thus makes the nature of the concordant vocalism of Vedic *púra-*, Lith. *pilìs* open to some question (for example, if it should prove that there was an initial cluster of an obscure sort), it is nonetheless perhaps significant that Vedic *pūr*, *pūr-ṣú*, but gen. sg. *pur-ás*, shows "long" vocalism.

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[9] For rigorous recent statements on shwa secundum, see now Kuryłowicz, *Apophonie* 169 and Hoenigswald, *Language Change and Linguistic Reconstruction* 134.

Certainly the correct and most adequate analysis of these vocalisms in seṭ bases has been given by Kuryłowicz, *Apophonie* 171–3 and 394–5. In this view, once **CRXV* had produced **CaRV* as a regular result in the "southern" languages, similar **CaRV* sequences were set up by morphophonemic analogy in aniṭ bases, thus accounting for OIr. *scaraim*, etc. While this formulation of Kuryłowicz has great appeal through its elegance, it seems to me that the underlying pertinent phenomena are more complex than this would make them. Thus, my criticism of Kuryłowicz on this score is not that his hypothesis would not suffice to cover the end results one way or another, but rather that we have good evidence in IE of a greater variety of situations, with succinct formulations to cover them, and that the difficulty in many instances lies more in choosing the appropriate solution or indeed in determining whether a unique solution can be stated. In short, the inventory and distribution of IE phonemes and allophones on which it seems Kuryłowicz and I agree allows of more explicatory possibilities than Kuryłowicz exploits. Once this situation is clear, I am not sure that the so-called "southern" languages all behave homogeneously on this score, though I find the grouping persuasive on other grounds.

As I see it, there are three kinds of apparent *R̥V*:

(1) Sievers alternants of **CRV*. It is highly significant that in W. *edn*, OIr. *én* 'bird' < **(p)etnos* we have a nonsyllabic development of **n* linked to **e* vocalism, whereas in W. *adain* 'wing' < **atani:*, pl. *adanedd* < **atanija:-* we have a reflex of **n̥* linked to Kuryłowicz's "morphological" *a*. While Kuryłowicz (*Apophonie* 176ff.) accounts well for the status of **(p)at-*, he does not explain the relation of the suffix vocalism. I posit the series **(p)atani-* < **ptani-* < IE *[ptъni-] = */ptni-/. Similarly, we have W. *adar* 'birds' < **(p)atar-* < **ptar-* < IE *[ptъr-] = */ptr-/. Kuryłowicz's "morphological" *a* is correlated with precisely the cluster sequences which would have produced Sievers syllabifications at a time before the insertion of the *a*.

(2) **CRXV* with subsequent (dialectal?) loss of **X*. This is dealt with in *Apophonie* 171ff. It is to this that I attribute **smX-* 'summer', **tlX-* 'lift, weigh (> pay)', **plX-* 'fort'; here is surely where we must put OIr. *air*^{L}, Gaul. *are-*, Goth. *faura*, Skt. *purás* (Th. 498) < **prXV-*, and OIr. *tar*, Skt. *tirás*, Av. *tarō* (Th. 531) < **trXos* (: Lat. *trāns*, W. *tra*^{G}, *traw* < **treA-*, which are problematical in detail; see *EM*^{3} 1236, *LHEB* 637). The first of the latter equations is supported by Hitt. *parḫ-* 'hetzen, treiben, jagen' (Friedrich *HW* 159), and the second perhaps by Hitt. *tarḫ-* 'besiegen, überwinden' (*HW* 213), which Sturtevant writes (*HG*^{2} 48) **perx-*, **terx-*. Alongside Lat. *mora*, we may perhaps see in OIr. *maraim* the zero grade **mrA-*.

It is sometimes difficult to ascertain just how far laryngeal-bearing suffixes are to be assumed in large families of cognates involving a variety of formations. Thus, the base **s(e)m-* can have no such extension or suffix in forms represented by Gk. εἷς, Lat.

semper, Skt. *sahasra-*, Avest. *hazaŋra-* '1000', Skt. *sa-kṛ́t*, Avest. *hakərəṯ*, *ha-kaṯ*, Gk. ἅπαξ, Lat. *simplex*. Yet Lat. *similis*, OIr. *samail*, Welsh *hafal*, Gk. ἅμα, ἁμόθεν, Goth. *sums* may easily reflect something like **smXli-* and **smX*(*o*)-. If that is so, it is still hard to be sure just what the morphological segmentation of the suffixes is.

(3) Analogical refashionings from sequences **CR̥W* within the same paradigm. This may well be what we have in Skt. *tanú-*, OIr. *tan*(*a*)*e*, Corn. *tanow*, Bret. *tanao*. There has been difficulty with W. *teneu* (see the discussion *LHEB* 376), but note also Vannetais *tenaù* (Plœmel /tønaw/), which seems to have been overlooked. In view of W. *edeu* (: *adawaf*) 'leaves, promises', *teu* (: *tawaf*) 'is silent', *gwerendeu* (: *gwarandaw*) 'listens' (see *LHEB* 592), and *ceneu* 'whelp' (see *LHEB* 369), surely *teneu* must reflect final *ī*-affection, and therefore represent **tanawi:*; the Vannetais initial syllable supports this. Then I would regard Bret. *tanao*, OIr. *tanae* as reflecting a proximate **tanawjo-*, while Corn. *tanow* must be **tanow*(*o*)-; hence the Cornish shows a remnant of the old *u*-stem. In turn, **tanawi:* could be the restructured feminine **tanwi:* < **tn̥w-*, while, from the point of view of vocalism, an old plural **tanowes* (Corn. *tanow*) would illustrate the analogical spread of **an*.

On the other hand, W. *carw* 'stag' would simply be a direct continuation of **ḱr̥w-*, just as *carr* 'cart, frame' (Lat. *currus*) is **kr̥sos*.

In this framework it seems to me that Kuryłowicz treats as (3) many cases that may well be instances of (1); see *Apophonie* 172 for examples (e.g. *ḱuwṓn*). Likewise, as I imply above (e.g. Skt. *purú-*), he also treats as (3) some instances which I would place under (2).

In short, though Sievers-Edgerton syllabifications are clearly to be reckoned with, many cases of apparent syllabic sonant before vowel represent not a reflex of earlier sonant allophones depending on *preceding* phoneme sequences, but rather a reflex of allophones in syllabic position by virtue of a *following* laryngeal, since vanished.

Now **krm-*, underlying *craf*, has not one, but two, sonants following the consonant. Edgerton's formulation for this sequence (*Language* 19.109) is quite clear: "the first semivowel is vocalic, the second consonantal." Thus we expect **kr̥mV-*. In the case of Welsh *pryf*, Breton *preñv*, OIr. *cruim*, Skt. *kṛ́mi-*, Lith. *kirmìs*, Albanian *krimp* < **k*^{w}*ṛ́mis* 'worm', this is exactly the pattern that we get. Yet if in Mid. Ir. *crim*, Gk. κρέμυον, κρόμυον we may try to attribute the syllabification to the intervening vocalism, we cannot avoid a Pre-Keltic conditioning for Welsh *craf*. Therefore, I posit **krmXV-*, which is simply a more complex instance of type (2) above.

We may even go further, and see in the Gk. *u* a trace of Martinet's A^{w}. If so, for Mid. Ir. *crim*, *crem* (Scottish Gaelic has /krε̃f/ and /krε̃v/) and Gk. κρέμυον we write **kremγ*^{w}-, and for Welsh *craf* and Gk. κρόμυον (with "Achaean" *o*?) **krmγ*^{w}-.

Here, certainly, laryngeals simplify our morphophonemic expressions – but, equally clearly, on a Pre-Keltic level.

It is interesting that the pre-laryngeal reflex has an *a* vocalism, exactly equal to the early pre-sonant and pre-*s* reflexes in Keltic.

Such expressions simplify some points of morphology, too. In the famous paradigm of _ben_ 'woman, wife', the gen. sg. and acc. pl. _mná_ reflects _*bna:s_ < *g^{w}_naA_-; but the gen. pl. _banN_ is _*banon_ < *g^{w}_nAõm_.

Similarly, the paradigm of _crú_ 'blood' (and likewise _cnú_ 'nut') is not set forth in Th. § 310 and 314 as perspicuously as it might be:

nom. acc. _crú_ < _*krú:_ < _*kruX_
gen. _cróu_ < _*krow_ (perhaps) < _*krowas_ < _*kruwos_ < _*kruXos_.

10. While positing of laryngeals helps in understanding certain syllabifications, it does not, in the above situations, change our understanding of the inventory or sequence properties of the Proto-Keltic phonemes. Rather, it brings us to a consideration of the chronology of hiatus in Keltic.

Adjacent syllabics are not uncommon in modern Welsh, but for the most part they are readily explained as the result of post-Proto-Keltic or post-British loss of unexciting phonemes, e.g. _-g-_ (lost since Old Welsh), juncture (lost in compounds of the sort represented by _diawg_ 'lazy', i.e. '*un-swift', since Proto-British), or as the result of fresh morphological combination (e.g. Cyfeiliog /trīo/ 'to try', /trīux/ 'you (pl.) try'). So, whatever the puzzling exact background of _llw_ 'oath' (see _LHEB_ 425 and preceding references; _*lugo-?_) and the morphological analogies that underlie the modern plural _llwon_ and the earlier plural _llyfon_ (_*lugones?_), there is no essential problem in the status of the hiatus. In _mieri_ 'brambles', from apparent _*mijarí: V-_, there is no difficulty with the modern hiatus, though the seeming earlier hiatus of the final (see above) is unclear to me.

Breton, so far as I know provisionally from field observation (published materials, including Le Roux's Atlas, are frequently opaque on just such matters), is complicated in many particulars, but shows perhaps three sorts of developments by contrast with Welsh: a) certain vowel fusions with qualitative adjustments; b) resolution of sequences with lip-rounding by conversion to /v w ẅ/ (Plœmel Vannetais /dwɑr/ 'earth', /piẅ/ 'who', /ẅøjeẅ/ 'eggs' < _üi_$^{+}$_eü_) and with palatal glides by conversion to /j/ (Plœmel /tjɑ/ 'tongue' : standard _teod_, W. _tafod_); c) separate syllabification of vowel sequences in French-like typological style, e.g. _eol_, _ewol_ 'sun', but Plœmel /ewl/, against Bangor Welsh /haïl/ (with diphthong [ai̯]). It will take a long time to sort out the complex dialect phenomena in Breton, but I feel confident that these essentially recent developments will not materially change the picture that modern Welsh plus the medieval languages has yielded.

Hiatus in modern Irish has nothing to do with syllabic sequences in the older language, but only with the drastic changes in consonantism since Early Modern Irish.

Thus we find that the one clear and direct preserver of Old Irish hiatus is Scottish Gaelic (where also, in some dialects, intervocalic _h_ < _-th-_, and certain cases of the old voiced spirants fall in with it). Here we have /fíəx/ 'debt' : /fíə̆x/ 'raven'; /óə̆/ 'grandson'; /áă/ 'liver'; /ǵúŭs/ 'fir tree', attested in OIr. as _giús_.

Now OIr. hiatus, in turn, usually goes back to _*s_, _*j_, and _*w_; there are still some problems left about _*-s-_, but in the main the detail and chronology for all environments is just about solved. Sometimes we find an early fusion, e.g. *toísech*, W. *tywysog* (: *to·fed-* 'lead'), TOVISACI. There is also a slight embarrassment in accounting for the treatment of stressed *ĕ* in hiatus (Th. § 79), e.g. *ni*(*a*)*e* 'sister's son', but *teë* 'hot', but one can see the paradigmatic conditions that may be brought into play to solve these (the account in *LP* § 5.3 is inadequate).

The last forms cited bring us back to hiatus in Proto-Keltic. It is clear that the loss of **p* had important consequences, as OIr. *ni*(*a*)*e*, W. *nei* show. This was true in two ways: a) If there had been no hiatus before, there certainly was now; b) An initial opposition was clearly set up between **ulV-* (OIr. *ulcha* 'beard') and **wlV-* (OIr. *fled*), thus yielding phonemic /w/, whatever the detailed development of /j/. Hence at one and the same time, from all we can tell if we were to strain to restrict our data and juggle reconstructed complementations, Proto-Keltic might to a large extent be phonemicized (though I see difficulties) by filling these hiatuses with phonemic */w/ and */j/; this is what Jackson in effect alludes to at *LHEB* 347.

Moreover, for pre-Keltic before loss of **p*, we still have phonemic juncture in reserve, whether or not we want to consider **tarV-* 'across' in some earlier shape **tr*$^+$*V-* (see § 9 above). But not only is the last notion a solution of despair, and probably unattractive to most (now is not the time to enter into the problems of juncture correlations with morpheme boundaries), and not only does it also fail to sidestep the ultimate distinctive correspondence (which we may call **X*) on the IE level, but I think there are other shreds to be found. One example seems convincing to me.

The OIr. verb 'to spend the night' has several anomalies. Pokorny (IEW 72) gives for **au-*, *au̯-es-*, *au-s-* Armen. *aganim*, *awtʻ*, Gk. αὖλις (we might try writing **Aéw-*), Gk. ἰαύω **i-ausō* (**Ay-Aews-*) aor. ἄεσα infin. ἀϝέσ(σ)αι (*Awes-). Sturtevant (IHL) § 37 k) has *ḫwes-*, *vásati*, *wisan*, ἰαύω < IH **xáu-*, **xwes-*. Winter (*Language* 26, 365ff., 1950) relates Toch. B *yaṣi*, Toch. A *wṣe* 'night'. Pedersen (*VKG* 2, 524) relates the vowel of OIr. *foaid* to Armen. *goy*. Now let us inspect the forms.

Thurneysen (§ 644) notes the "peculiar future", 3 sg. *·fifea*, 1 sg. *fiba* (with long *í*). This could be a reduplicating future which with the loss of *-w-* (and *-s-*?) became attached to the productive *f*-future. A putative metathesis to **wisw-* as a slender source for the troublesome *f*-future is rightly rejected here in light of the long *í*. Now, basing ourselves on Th. § 669, we have (using a laryngeal initial) **Awy-Aws-s-ety* > **wi'usseti*(*s*) > **fïas-* or **fes-*; or (without *-s-*) **Awy-Aws-ety* > **wi'useti*(*s*) > **fïa-* or **fe-*; or better (with full-grade stem; cf. *fo·cicherr*) **Awy-Awes-s-ety* > **wi:wesseti*(*s*) > **fís-* (perhaps loss of **w* after long vowels, as speculated in *Études celtiques* 6. 288 [1954], perhaps metathesis **wi:wsV-* > **we:swV-* ?); or, finally, **Awy-Awes-ety* > **wi:weseti*(*s*) > **fíV-*. The result would then be transferred to the *f*-future. In any event, the long *í* of this verb is clearly explicable.

fíu 'he spent the night' has a 3 sg. *-u* (Th. § 702), pointing to a reduplicated **we'us-*. The 1 pl. *femmir*, 3 pl. *fétir*, *féotar* appear to have lost their *-w-*. Since the 3 sg. is uncontracted, we might try **AweAws-e* > *(*A*)*we'use* > **wi'use* > *fiu*. However, it can be argued that **AweAws-* should give *a*-coloring and an apparent "long diphthong": *_wăus-_. Perhaps that is just what happened, and to bridge the anomaly Proto-Keltic re-formed it to $*we^{+}use$. Whatever phoneme they inserted, it continued the laryngeal for syllabic purposes.

Similarly, for *_we'usontVr_ and *_we'us(V)m(Vr)_ we get *_wi'osoddVr_ (with syncope) > $*fi^{o}/_{a}dVr$ (written *_fiatar_) and *_wi'osm(Vr)_ > $*fi^{o}/_{a}mVr$ (written *_fiammar_). Then (1) by the alternation _ia_ ~ _é_ before slender (see Th. § 698 on fluctuation) we arrive at _fétir_, _fémmir_, while _feótar_ may reflect whatever it is that we see in _éo_ 'salmon', gen. sg. _iach_; or (2) we may have _e_ by syncope of disyllabic _ia_ (Th. § 106, p. 68): _no·biad_ 'he would be', but _no·betis_ 'they would be'.

The 2 sg. enclitic form _·ro-a_ (= _·fa_; cf. 3 sg. subjunct. _do·ibtá_ = *_·ind-ṡoa_) and 3 sg. pres. subjunct. _·fia_ < *_wes-ā-_ do not instruct us.

Whatever the status of this dubious "juncture", and consequently of earliest Keltic hiatus, the morphophonemics of Proto-Keltic show some interesting, if tenuous, laryngeal traces.

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The order of language groups and languages in this index agrees with the order of chapters in the book. Except where a different system is widely used in contemporary linguistic practice, the arrangement of individual forms in our lists follows the Latin alphabet.

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(The arrangement is essentially according to Friedrich's system. Indications of vowel and consonant length [voicelessness?] are disregarded for ordering purposes; diacritics with *h* and *s* are omitted.

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Edited by Cornelis H. van Schooneveld

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